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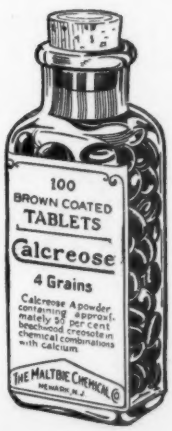

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Original Communications

ARTERIAL HYPER- AND HYPO-TENSION.*

By J. W. PRESTON, M. D., Roanoke, Va.

Having assigned me so broad a subject as my contribution to this symposium, I conclude it to be your desire that I discuss only the more important features of the deviation of blood pressure from normal, and I shall, therefore, after a brief resume of our present knowledge of a few of the underlying principles, devote myself mainly to the practical considerations in the care of such cases.

Normal blood pressure is maintained by a functionally intact heart driving blood into normal vessels, the calibres of which are so regulated by a nerve mechanism as to maintain a proper, steady flow into the capillaries and thence into the tissues and cells. Blending and subtly diffusing into the controlling mechanism, the endocrine system also silently plays its part.

Touching this latter we feel certain that the secretion of the adrenal tends to raise pressure, that the pituitary and thyroid correlate with it, and finally that the gonads are important factors. Little known in this relation but gradually unfolding to us its functions is the autonomic nervous system, the chain linking together the glandular system here mentioned, and likewise functioning as the path traveled by the emotions and psychic influences from the brain centres, all of which have to do with the blood pressure.

In so far as we know, the point of pathology in pressure changes begins at the terminals of the arterioles. Whether these changes come as a result of poisonous products of a faulty metabolism. whether through an inherent and inherited weakness, through temperament, or finally through an overload of the machinery, presents an intricate problem.

As to arteriosclerotic changes, it is probable that these are seldom, if ever, primary causes of increasing pressure, except as related to the kidney, but rather are coincident, resulting from the same source, or, like the enlarging heart, are compensatory.

The question as to why the pathological succeeds the physiological in the circulatory system of recent years, so much more frequently than in the past, has not been answered except in the vague way that we live faster, eat richer food and that the fight for existence is greater, and, to quote Moschowitz[1], those prone to hypertension "Burn up their energies swiftly, until at middle age they are exhausted, and the rest of their life is spent in seeking health."

As to the part borne by focal infection in relation to blood pressure disturbances, it must be admitted that even at this late day there is little definite. It is true that few people during their fourth and fifth decades, with abnormal rise of pressure, are free from some form of focal infection. It is certainly true that many have such infections with normal pressures. It is a beautiful theory that the absorption of split proteins from focal infections acting through the nerve control, or the vessel walls, may maintain first a vessel spasm and later produce permanent changes. This is a factor which cannot at present be ruled out. To say the least, while focal infections tend to maintain a lowered vitality, mistakes are often made in attempting their removal after a patient is badly weakened by organic changes in the vascular system.

Whatever the cause, it seems to be a fact that cardiovascular diseases are upon the increase and a close second to tuberculosis. A matter of interest is that we hear so much of the importance of early diagnosis of tuberculosis and so little of the importance of an early recognition of the disorder here under consideration. To diagnose the former requires much skill, time and patience. To diagnose the latter

*Read as part of the Symposium on Cardio-Vascular-Renal System, at the Southwestern Virginia Medical Society, Roanoke, May 31 and June 1, 1921.

is comparatively simple, after making due allowance for functional variations. May I not here stress the imperative need of greater vigilance in detecting and treating the earlier stages of hypertension?

It may indeed be unfortunate that a beginning deviation of blood pressure from normal does not carry with it the tell-tale symptoms of most diseases, for of all serious conditions this is perhaps the one found oftenest in a routine examination and in patients who are feeling themselves to be in excellent health. This applies more particularly to a beginning elevation of pressure.

Manifestly, a distinction should be drawn both in prognosis and treatment between such cases as have a nephritic or renal sclerotic basis, and such as have not; the latter falling under the head of the essential hypertensive cases. As a means of differentiation, the phenolphthalein test is most helpful, but I desire here to particularly call attention to the practical value of the observation that urines in the nephritic cases practically always run a fixed low specific gravity. This observation is not by any means new, but Mosenthal[3] has recently emphasized it.

Another symptom of value in differentiation which deserves more consideration is that of more frequent night urination in the cases tending to kidney involvement, the damaged kidney being forced to work overtime to perform its function. The fact that albumen is not present in such cases means so very little that I personally am in doubt if it really be worth the trouble of looking for, it being so seldom present even in the cases in which the loss of kidney function is marked.

Having discovered a blood pressure ranging constantly above normal, what may be done? This again brings us back to the etiology and impresses the fact that the proper attitude to assume is that the condition is a symptom, which, like the smoke from a smouldering volcano, indicates what is going on beneath.

In the matter of treatment it is probable that educating a patient in regulating his habits of work and play, his diet and his general manner of living so as to best relieve strain and tension is the best service that can be rendered him. An imperative duty is not to unduly alarm such an individual.

All have noted the rapid decay of such individuals, often incident to enforced idleness, which breeds introspection. Such an individual should probably not give up his work, but should so regulate it as to keep the expenditure of energy well within his strength. The housewife should be taught that her cares, worries, and domestic upsets are perhaps not so serious as she conceives them to be. The teaching of optimism nowhere better repays. Frequent holidays and the cultivation of a hobby is better than medicine.

Of the newer contributions to the therapy of hypertensive cases it is probable that the most important is that of Allen[4], in which he points out that the chlorides and water are the two substances requiring, if ingested to an excess, a heightened blood pressure for elimination. Patients can be easily trained to use smaller quantites of salt on their food and likewise to properly regulate water intake.

Relative to dieting, it is certainly true that in our zeal we often overdo this matter and weaken our patients till their last state is worse than their first. It is likewise true, however, that many of these patients overeat and the majority who are inclined to overweight are benefited by a reduction in food and coincidently their weight, both of which had perhaps best be accomplished by lowering the intake of fats and carbohydrates after the manner of reduction in a mild diabetis.

Confusing no doubt the matter of rising pressures with increase of blood urea in the nephritic cases, the impression has become fixed that proteins should be largely excluded from the diet of all cases of elevated pressure. Mosenthal[2] has rendered a service by showing that high protein diet does not raise blood pressure, and conversely a low one does not reduce it except through secondary anemia, so it is probable that we have gone too far in the way of taking away meat as an article of diet, especially in reduced cases.

It is self-evident that such patients should be most carefully protected against infection and placed in bed upon the advent of even a minor one, for all will agree that many breakdowns date from the onset of a common cold or pharyngitis. I have noted that for some reason breaks in compensation in high pressure cases are more prone to occur in the beginning of cool weather.

In a considerable proportion of cases, neurasthenic symptoms develop early, partly due, no doubt, to the disturbed sleep from which

so many suffer, and in such the sedatives, of which the bromides are least harmful, are indeed a boon. An hour's rest in the recumbent position after the midday meal and later breakfast in bed is most helpful.

Encouragement upon the part of the physician means much, and may well be classified as a part of psychotherapy, which properly employed benefits, as does also judicious massage in such cases as are not able to exercise.

Later, as the periodic breakdowns begin to come, from one to six weeks' rest in bed, exactly as in ordinary cardiac decompensation, accomplishes a great deal. Who has not seen the new lease of life given these cases by an enforced period of rest in bed, incident to a ruptured cerebral vessel, especially in such as have a minimum of kidney involvement?

Aside from such sedatives as bromide and chloral, and later opium in small doses, as above referred to, the one drug which I have found most universally helpful is digitalis in properly adjusted dosages. The old theory was that digitalis increased blood pressure, but anyone who will take the trouble to follow its administration with pressure readings will find that this is not true, except in such cases as have a falling pressure due to a failing circulation.

Barker[5] well states that "Digitalis is not only of great value when the heart muscle has evidently begun to fag, but may be given in moderate dosage earlier with advantage."

As to further drug therapy, in such patients as are subject to headaches and whose elimination is poor, small doses of blue-mass twice weekly are certainly helpful. For such cases as present symptoms of edema, theocin or diuretin, given in a few successive doses, have a well earned place. Benzyl benzoate has been disappointing. I have personally seen but little benefit from the iodides. Judicious bleeding has its place in the plethoric but is a temporary expedient. The nitrites help in anginoid pains, but otherwise are probably of little value.

Time permits only a word as to subnormal pressures, and suffice it to say that in all such it is incumbent upon the practitioner to exclude all wasting infection, the most of which tend to lower the pressure through robbing the nervous and circulatory mechanism of their proper tone.

My observation is that an occasional case of low pressure results from the excessive use of tobacco, and my impression is that just as some cases of overwork and nerve strain result in high pressure, others, perhaps through exhaustion, show the reverse.

Of greater importance in this connection, perhaps, is the role played by the glands of internal secretion. In addition to the well-known symptoms resulting from disease of the suprarenal, the pituitary now comes in for a just share of attention, and, as recently summarized by Timme[6], there is now a fairly well defined condition of asthenia, headache, and low pressure which is benefited by the administration of pituitrin.

In the above connection and bearing directly upon it, if I may be permitted to revert for a moment to hypertension, I would call your attention to what now seems a well defined elevation of pressure, coincident with the menopause, which in many cases is much benefited by the use of lutein substance. Commenting upon this, Hopkins[7] draws the conclusion that it is a natural assumption to consider that a certain amount of depressor influence of the ovary is withdrawn from the adrenals, hypophysis and thyroid, leaving them, as it were, out of balance.

In conclusion, I wish to emphasize:

1. That the actual source of rising pressure is probably in the terminal arterioles, which may result from changes, functional or otherwise, in the nervous, metabolic, endocrine, or excretory systems, singly or combined.

2. It is of important prognostic value to determine whether hypertension in a given case has mainly a nephritic basis, or if the kidneys be comparatively healthful; in determining this, a careful following of the specific gravity of the urines is among the simplest and best tests.

3. It is not yet definitely known what relation focal infections bear to blood pressure disturbances.

4. That it is the duty of the profession to awaken to the importance of early diagnosis of rising blood pressures and to follow such cases with more care, with the hope of forestalling clinical symptoms and pathological changes.

5. That the endocrines should be carefully

studied in relation to both the hyper-tension and the hypo-tension cases.

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THE MANAGEMENT OF BROKEN COMPENSATION.*

By F. H. SMITH, M. D., Abingdon, Va.

So much crowds upon one's thoughts when faced with the discussion of such a many-sided subject that one may be pardoned should he touch upon what another would omit, or the reverse. For instance, it seems best to discuss, first, my conception of the title "broken compensation." For, by inference, I may suggest the reason for some omissions. I shall say little of etiology, pathology and symptomatology, for example.

The heart, blood vessels and kidneys are so intimately reciprocal in function that they are really but one physiologic system. One link in this chain cannot be long affected and either of the others be immune. We think of the heart first when we speak of broken compensation; but there is always more or less failure of compensation in the kidneys. Sometimes one fails first, sometimes the other, and sometimes we do not know which is the primary offender and which but the innocent bystander or partner. And the ultimate fate of the arteriosclerotic, if he escapes arteriolar rupture, is by way of cardiac or renal decompensation. Therefore, our conception of the term broken compensation must be comprehensive enough to envisage the entire cardio-vascular-renal circuit.

Yet, the heart is the keystone of this arch, not only anatomically, but physiologically and pathologically. In the normal heart there resides an enormous amount of reserve energy which enables it for a term, measured at times by years or decades, to overcome or compensate for grave handicaps in the system; whereas the opposite is the rule when the integrity of the heart itself is directly assailed. Hence, in the picture of broken compensation the heart is always in the foreground.

It is unfortunate that there clings in the minds of so many of us false notions, false conceptions of facts through the unthinking use of terms. I am thinking just now of the loose way in which we use the terms "functional" and "organic" heart disease. Thomas Lewis, of England, expresses the idea so forcibly: "It never has been shown, nor will be shown, that all instances of structural change in the heart are serious; it never has been shown, nor will be shown, that affections in which the heart is suspect, but which are accompanied by no evidence of structural disease, are of trivial import. Yet such is the almost universal and instant assumption as the affirmative or negative answer is given. On the one hand, one sees a patient with a scar on the pericardium or on the edge of the mitral valve, a healed scar which never had, and never will cause inconvenience, providing no medical man discovers in him the signs of it, and misinterprets its significance. The other side of the picture shows men who are genuinely distressed when they exert themselves in any way, but who, presenting no cardiac signs other than those of a supposed 'functional' condition, are dealt with casually or cavalierly."

Another writer has illustrated the same thought in this way: I cut my finger. This flesh wound constitutes a lesion. One of two results are to be expected. First, by reason of engrafted infection, a slowly healing wound results, cicatricial deformity occurs, joints become crippled, and the finger becomes injured permanently for the discharge of its proper function. If this crippling is progressive, progressive loss of function can be expected, until in time the finger becomes no good. This is disease. On the other hand, the wound may heal kindly, by primary intention, with a clean scar, without deformity or disability of function of the finger. The chances are that the injury will never impair the functional or anatomical integrity of the finger. The mere presence of an innocent scar is the only reminder that an injury ever occurred. Or we can go further with this hypothetical situation. The injury may have resulted in actual loss

*Read as a part of the Symposium on Cardio-Vascular-Renal Disease, at the meeting of the Southwestern Virginia Medical Society, Pulaski, May 11 and 12, 1921.

of substance. Some part of the bone may have been lost. And yet, when healing occurs, a soft, pliable scar remains, and the finger is as good as it was before. Surely this is not a diseased finger!

The point both are trying to convey is that a murmur does not always represent heart disease. Lewis, in fact, says that the medical profession would be much further on the road to an intelligent idea of heart disease if a murmur and alteration of heart sounds had never been discovered. Certain murmurs are of interest, only because their existence predicates an inflammatory or degenerative change in the myocardium.

We are brought to face the question: What, then, is heart disease? What is broken cardiac compensation?

The function of the heart is to pump blood. The myocardium is the structure which is essential to this function. The whole problem centers in the one question: Is there any factor which now does, or in the future will, compromise the myocardium in its one function?

I have already referred to the marvellous reserve power of the heart. It is the ability of the heart to mobilize its myocardial reserve that renders the normal individual the adaptable, many-geared machine that he is. It is the same reserve power which is called upon when the heart is handicapped by damage in the circulatory system. How we wish we could measure this power and express it in figures! Suppose we could measure on a manometer that amount of energy necessary to carry on the ordinary functions of life, and give to it a value of 100; then measure the amount of energy which the same heart could exert under maximal urge, and give that a value of, say, 200. The difference between these two figures would represent the reserve power of the heart, as the difference between diastolic and systolic pressures represents the pulse pressure.

Because there is no such standard, all sorts of formulae and expedients have been devised, unsatisfactorily. But the lack is not so serious as it would seem. The evidence of diminishing reserve power is at hand for the one who will note it. The symptoms and signs of breaking or broken compensation are those which the normal individual experiences when he begins to encroach upon or to exhaust his reserve power in strenuous exercise. Overstrain of a normal heart gives rise to a series of phenomena progressively disagreeable or dangerous as the limits of his reserve are approached. First, breathlessness; he breathes faster and in a labored fashion, with a sense of constriction about the chest. Then, weariness of the accessory muscles of respiration ensues. The face, flushed at first, becomes pale or dusky. He breaks into sweat. The heart pounds rapidly, but later the pulse becomes weak and irregular. Cough, with frothy or bloody expectoration, nausea, swollen limbs, etc., may represent extreme strain. These are just as truly steps in the progress of broken compensation. The difference is that in the one, strenuous exercise was needed to bring them out; in the other, progressively less exertion is required, until in the end the activities necessary to maintain bare existence become a burden.

Therefore, it follows that the test of efficiency or of inefficiency is the individual's tolerance for physical work. Broken compensation begins when the individual is unable to do without evidence of heart strain what he did formerly with comfort. Exhaustion, breathlessness and precordial pain are the earliest evidences.

The management of broken compensation should begin when it gives its first evidence; or, better still, before there is tangible evidence, if perchance we are able to detect the heart in which a myocardial break can be anticipated. Not that every actual or potential myocardial patient should be put upon drug treatment; the reverse is true. We should not resort to drugs until other means have proved unavailing or insufficient. At first the injunction, moderation in all things, accomplishes the desired result.

I think it very important that we recognize this first stage of broken compensation, because this is the hopeful stage. The promise of a relatively long life is at least as good as it is in the tuberculous case which will continue the "cure," or the diabetic who will live within his carbohydrate tolerance.

This is a home-grown American disease we are discussing. It seems that breakdown in this system is the penalty exacted for success, and invalidism and death at the most productive period of life finds its high-water mark here. We laugh at the manner of living of other peoples, but they live longer to laugh at us. So long as we continue to put success and the acquirement of riches above every other

desideratum, so long as we live the strenuous life of modern America, the annual toll from these degenerative diseases will continue unabated. The medical profession contributes its full quota to these untimely deaths. Chronic worry and harassment, irregular hours of rest and eating, are the doctor's lot. He is always on tension, unless he early learns to throw off cares as he does his overcoat, when he comes in from his day's rounds. A vacation every year would be repaid each one of us at the other end of life in extended life insurance. "The servant that knoweth his master's will and doeth it not shall be beaten with many stripes."

Perforce treated slightingly here, it pays to go most intimately into every detail of the patient's life. We must find out where stress and strain occur; then order a reconstruction of the day's work, interspersed with frequent vacations or the enjoyment of his hobby. Each patient is a separate problem. That rare endowment, common sense, is the only guide.

This is the time, too, when we should be searching out and removing all discoverable infectious foci. I plead guilty with the rest of the profession to having gone a little mad in the wholesale condemnation of every tonsil and many teeth. And yet even now I do not know how to help it. The emphasis which has been placed upon these focal infections has done, and is doing, untold and inestimable good. We are not yet in position to say just how much good the crusade is doing, for I believe that the chief benefit in cleaning up these infectious sites is in line of prophylaxis. Like syphilis, when tissue damage and anatomical change have occurred, it is unreasonable to expect specific treatment or eradication of the distant focus to replace destroyed cells. So, when we see circulatory lesions, in which there is already evidence of breakdown, frankly I cannot tell whether removal of the suspected, or even actually diseased, teeth or tonsils will improve the situation. Better, however, in my opinion, the sacrifice of ninety-nine diseased teeth or tonsils that have no etiologic bearing than to miss one in which the damage done is not already irreparable.

But the second stage of decompensation has come. The patient finds that regulation of life's activities, even rest in bed, will not suffice to restore the balance. Something more is needed. Here is the point where I should introduce advice as to the scrutiny of all of the functions; go into the necessity of securing proper rest, sleep, proper food, elimination through bowels and kidneys; the advisability of laying aside all business worries, etc. But I shall have to pass them by. We are all agreed as to their importance.

The sheet-anchor in this stage, as well as in the one to follow, is digitalis. I may seem a bit dogmatic in asserting that strychnine, cactus, caffeine and all the rest should be thrown into the discard; and we should pin our faith to digitalis.

We have been wandering a bewildering way in the wilderness of doubt lately as to when to use digitalis and when not; in what dose we should use it; and what preparation to use; about the "cat unit," and so on. Those of us in general practice remote from instruments of precision like the electrocardiogram, the polygram, and so forth, begin to wonder whether the drug is indicated in this case of heart trouble or the other. Possibly this doubt is responsible for our poor results, and has weaned us away from our old faith. We have been accustomed to think of digitalis as a pure and simple cardiac stimulant or at least tonic. We have been told that it invariably raises blood pressure. I believe we will get a new and welcome light on the action of digitalis, the why and wherefore of its use, if we will throw away this old belief. Such is not the true action of digitalis. Undoubtedly, there is a restorative quality in digitalis. But this is not in the direction of stimulation. Lewis is my authority in this statement. He says: "Those who regard digitalis as a cardiac stimulant mistake its character; its chief action is to rest the heart. To the heart foxglove is not tonic, but powerfully hypnotic. It extends the diastoles of the heart; it extends the periods of sleep."

If this conception of the action of digitalis be the true and complete one, then it would seem that it is not contra-indicated save when there is already interference with normal conduction through the bundle of His and its branches; in other words, unless the heart rate is already abnormally slow. Unfortunately, the reverse is not always true: digitalis has not the same happy effect in all cases. The fact is that digitalis has what might be spoken of, as almost specific effect in one condition only. This is the state of auricular fibrillation.

Without instruments of precision we cannot always be certain that fibrillation actually exists. But we do know that it is the most likely explanation of the absolutely irregular pulse. By this we mean a pulse, the arhythmic quality of which is such that during no series of consecutive beats is the rhythm the same as during any other like series. Fibrillation also is oftenest responsible for the existence of marked pulse deficit, where the beats per minute are much more numerous at the heart than at the radial pulse.

Whether digitalis will influence conditions when the pulse seems perfectly rhythmic at the wrist is a debatable question. My own position is that it will do no harm to try its effect intelligently; and sometimes, even when we would think there could be no good effect, we get it.

The bald statement that digitalis raises blood pressure and, therefore, should not be used in hypertensive cases is a great mistake. This whole question of blood pressure is badly muddled in many minds. Like fever, blood pressure is not a disease; and, again like fever, it is not always wise to fix attention upon high pressure and insist upon reducing it. I have never seen digitalis raise an abnormally high blood pressure. I have frequently seen the systolic pressure reduced while the patient was on heavy digitalis dosage. Usually there occurs a readjustment of pulse pressure. A compensatory systolic pressure may have fallen too low, while the diastolic had risen, thus leaving too narrow a margin of pressure to carry on circulation after the initial inertia of the blood mass is overcome. At any rate, other factors indicating the use of digitalis, it is not wise to take the blood pressure as a contraindication thereto. In just such cases we often see the happiest effects.

Much confusion also exists in regard to the dosage. Lately, several articles have appeared advocating what seems to most of us dangerously high dosage, such as a half ounce, or even a whole ounce, of the tincture. There are times when such heroic dosage is indicated and life-saving. In ordinary dosage the drug takes eighteen or twenty-four hours to act. With such intensive dosage we can anticipate the digitalis effects in four to six hours. But this is the only difference. What we want is to digitalize the patient; get the effects of digitalis. It should be noted with regard to the advocacy of these large doses that it is to be given but once, at least until its effects pass off, and usually only in some emergency. Usually, there is time enough to get the effect more deliberately and possibly more safely, at least under the conditions in which most of us practice. But we must get the patient digitalized.

Eggleston recommends a plan of dosage by which he says the patient may be digitalized in one or two days: 6 or 7 grains of the powdered leaf or 1 dram of the tincture are to be given every six hours, day and night, for four doses. The dose is then reduced by one-half and the interval is shortened to four hours, giving four doses per day and none during the night. The latter dose and interval are continued until full digitalization is secured.

The question of dosage is crucial. Just what plan to follow to get the full effects is of little moment, with one vital proviso: If we have time enough, we may temporize with small doses, but in emergency we must approximate one of these plans that we consider heroic. The gravest criticism of most doctors in general practice is that they never get their patients under the influence of the drug; hence, the lack of faith in it, and the seeking after new drugs.

There is ample warning of digitalization. True, these are manifestations of minor intoxication. But we must bring the patient to this point oftentimes if digitalis is to help him. If nausea has not been present before, the appearance of nausea and vomiting is often the first indication. The reduction of the pulse rate, say, to 60, with approximate regularity in rhythm, is another. Or, if pulse deficit has existed, its improvement or disappearance is a pretty demonstration of the full effects of the drug. When any of these indications occur, the drug should be stopped, at least temporarily. But without some such evidence we cannot condemn the drug as ineffectual.

Closely akin is the choice of preparation. Broadly speaking, the doctor is safe in using the preparation with which he is most familiar. If he knows the drug-content is present, it becomes merely a question of adapting his dosage in terms of the crude drug. We should be reminded, however, that with all tinctures of digitalis the usual approximation of the drop and the minim is wanting. One preparation required 140 drops from the dropper to

touch the dram mark on the graduate. The infusion is notoriously unreliable. Few druggists dispense a good one, and if one such is found, he should deliver the day's supply afresh as the dairy does the milk.

Paraphrasing Osler's remark about the knowledge of syphilis: Know digitalis, and all things cardiotherapeutic shall be added unto you.

Now, for the third stage of cardiac decompensation. The patient must now be propped up to breathe. Foredoomed to failure in many cases, yet none is so extreme that we may not be gratified to see one restored even to many years of comparative comfort and usefulness. It is well worth the effort and the exacting demands made upon our time and attention. The patient's condition is distressing in the extreme. Condemned to live propped up in bed or chair day and night, panting for breath; too weak and breathless to talk or to eat; harassed by cough, ofttimes provoking nausea and vomiting; oedematous until it hurts; dropping into fitful, restless sleep of exhaustion, only to start into consciousness to relieve the dreadful apnea: as we survey the problem, what can we do?

First, we must make the patient comfortable. Not only from humanitarian motives, but because we cannot expect to restore the heart unless the patient can secure rest. I know of no place where a really trained nurse can be of such inestimable value. She can fix pillows and props, a pad here, support there, better than any awkward male hand can devise. And such devices go a long way toward aiding drug action, especially that sense of confidence and of the possibility of getting well that she instils. She can also fix those tempting little bits of nourishment which the patient will enjoy when he has no appetite for home dishes. Not the least of her services comes through her tactful ordering of the household and officious friends who insist upon holding the doleful wake while the dear departed is yet present to appreciate it.

But usually we need the help of drugs. Next to digitalis, there is one indispensable drug, and that is morphine. Nothing else will abate the respiratory distress, nor the pain, and put the patient into condition to rest tired body and mind. To withhold it is brutal as well as foolish.

Next, especially in the dropsical case, is the question of elimination. With splanchnic congestion such as it is, nausea and vomiting usually preclude administration of digitalis until a brisk saline has acted copiously. Sometimes we replace or alternate salts with elaterium or jalap. At any rate, we must repeat the hydragogue frequently.

That double salt of theobromine, called diuretin, is a drug that has sometimes been of service in starting kidney action. The same drug, too, has sometimes served to replace morphine in those slighter forms of angina and anginoid pains we have in some high pressure cases. It should be remembered that theobromine tires the kidneys and, therefore, it should be stopped after three or four days, and that it often acts best with or following digitalis. Sparteine in 2-grain doses hypodermatically has sometimes affected diuresis when other drugs have failed. When these, with digitalis, do not have effect, we have reason to believe that the kidneys themselves are diseased.

Ascites is sometimes moved by the aid of purgation and diuretics. Hydrothorax rarely is. Therefore, when there is any considerable amount of hydrothorax, and if ascites is not lessening, paracentesis should be resorted to promptly, to relieve the distressed breathing.

And the patient must be gotten as rapidly as can be under the influence of digitalis. It pays to try out one of these so-called heroic methods. Under large doses we can often begin to lower the back-rest, a notch at a time, in forty-eight hours. If we adopted this plan of rapid digitalization, the calls for intravenous therapy would be infrequent. If digitalis can be made to show effect in four to six hours, we can hardly expect more of strophanthin in the vein, and the one is at least as safe as the other. Particularly if the patient has been taking even moderate doses of digitalis within ten days, it is unsafe to use strophanthus intravenously; and it is not worth while to use strophanthus any other way.

In the congestive case, we should not lose sight of the emergency value of blood-letting. It is not necessary to perform a surgical operation to bleed. Often, when diastolic pressure is high, a simple large-bored needle thrust into the vein will bring away enough blood, especially if a syringe be used occasionally to aspirate as clots begin to form. Lately, I have used with good effect the Potain aspirating

bottle connected with the needle in the vein, and drawn off all the blood needed. With the relief of stagnation on the venous and pulmonary circuits, it is often little short of miraculous to see digitalis, hitherto inactive, take effect.

Happily, we enter upon the stage of convalescence. About the management of this stage there can be no rules. Usually when the patient has been able to discard his back-rest for a week, it is safe to allow him up in chair for fifteen minutes the first day. Within ten minutes after his return to bed we should note his pulse and respiration rate. If either are notably elevated, we are warned to proceed cautiously. Only after the patient is able to sit up most of the day, without producing evidence of heart strain, should he be permitted to walk. He should be taught the subjective evidences of heart strain and, upon recognizing them, to stop. If some degree of breathlessness and the like persist, it is well to keep the patient on small doses of digitalis, trying to regulate the dose to the point of keeping the pulse regular and around 70 to the minute.

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SURGICAL SIDE OF CARDIO-VASCULAR-RENAL DISEASES.*

By A. P. JONES, M. D., Roanoke, Va.

"The Surgical Side of Cardio-Vascular-Renal Disease" as the title of a paper is a little ambiguous. From the wording, it might mean a discussion of surgical measures applied to the treatment of this condition, but, as decapsulation of the kidney is the only operative procedure which has been suggested for that organ, and none has been devised for the heart and blood vessels which would offer relief in this condition, the subject resolves itself into a discussion of surgical procedures on individuals who are suffering from cardio-vascular-renal disease.

It is a matter of common knowledge that patients who are suffering from this disease are much poorer surgical risks than normal individuals. This does not prevent them from developing conditions which demand surgical intervention, however, and we must be prepared to give them the best chance possible for recovery.

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The first essential is a recognition of the condition of the heart, kidneys and vascular system. This, of course, is the reason for the routine examination of the heart and the urine and the estimation of the blood-pressure, which precedes every operation in a well regulated hospital, today. These routine examinations, however, may have to be supplemented by more detailed investigation, but these have been discussed by the other essayists.

Permit me to emphasize the great value of blood-urea determination as a prognostic indication, because it is not unusual to see a phthalein output at or near normal when the blood-urea is dangerously increased. This is particularly true of prostate cases.

Having a clear conception of patients' impaired chances, the surgeon must ask himself the question, Is the operation absolutely necessary at this time? Numerous emergencies arise—an acute appendix, a strangulated hernia, a perforated ulcer, which leave no question as to the imperative necessity for operation, but operations of election may be omitted or postponed to "a more convenient season." What has been aptly termed "meddlesome surgery" has no place here.

Having now determined upon operation, the next important consideration is the choice of an anaesthetic. Both ether and chloroform have a deleterious effect upon a previously diseased kidney, and anyone who has examined post-operative specimens of urine from a considerable number of patients knows how very frequently albumen and casts are found when no kidney disease has been recognized before operation. Gas-oxygen anaesthesia is of value in certain cases, but local anaesthesia finds here one of its great fields of usefulness and a wide variety of operations may be done under novocaine or some similar drug. The combination of gas and oxygen with local anaesthesia, as perfected by Crile, works like a charm in his hands, but most of the rest of us lack either his skill or his patience, or both.

In a recent publication, Barker states that the cardio-vascular-renal patient stands anaesthesia and operation well, and we have all seen patients with bad hearts, whose pulses were more normal and regular under ether than at any other time. My experience, however, has been that the real trouble showed up two or three days later. A case in point is that of a girl of twenty, who came in with

acute intestinal obstruction. Examination showed a loud mitral murmur and albumen and casts in the urine. Operation was simple and short, as a single obstructing band was found and released and the patient apparently stood it well. Nevertheless, two days later she died with a definite cardiac failure.

Prostate cases present to the surgeon the problem of dealing with the cardio-vascular-renal individual more frequently than any other single class of cases. The result has been, as you all know, the adoption of local anaesthesia for a rapidly increasing number of these cases.

When I came to this meeting, I left in the hospital a man on whom we recently operated for a large hernia. He had a blood pressure of 240 systolic, with albumen and casts in the urine. We used a local anaesthetic and he is now ready to leave the hospital after an uneventful convalescence. I feel sure that any general anaesthetic would have been extremely dangerous for him.

In eclampsia, which may be considered as of a similar nature to the subject under discussion, local anaesthesia has also been of great value when a Caesarean section becomes necessary.

Therefore, as you have already gathered from these rambling remarks, my idea of the relation of cardio-vascular-renal disease is this:

1. Acquaint yourself with the true conditions of your patient, by all means available.

2. Assure yourself of the necessity of surgical intervention.

3. Plan to protect your patient's heart, vessels and kidneys as much as possible, and this will probably lead to the use of a local anaesthetic.

NEURO-SYPHILIS.*

By GEORGE A. WRIGHT, M. D., Marion, Va.

The subject of this paper is the result of deliberate thought, believing that it should prove of interest to members of this Society. After doing general practice for more than twelve years, it is my conclusion that no diseased condition of the human anatomy, organic or functional, is more commonly misdiagnosed than latent syphilis, when involving the nervous system. In this connection, I might properly state that the early diagnosis of neuro-syphilis is equally important as the recognition of tuberculosis in its incipiency, from the standpoint of successful treatment. However, on this point men differ, there being a small percentage of prominent experienced physicians who claim that treatment is of little avail; others being able to demonstrate successful results.

According to numerous cases treated by various methods, which I propose to take up later, all have been improved, with a good per cent. of apparent permanent cures. These, however, do not embrace cases far advanced at the time of admission.

The vast majority of cases of syphilis, under ordinary treatment, apparently regain their normal health and pass from medical observation into oblivion. In the course of ten or more years, from 3 to 5 per cent. of all such cases develop symptoms incident to general paresis or tabes.

Some of us recall having treated certain cases of hysteria, neurasthenia, and the like, and having prayed to the good Lord, "From all such deliver us." Had we made further investigation, in many instances, syphilis would have been found to be the underlying cause.

As formerly suggested, the outcome of cerebro-spinal syphilis, general paresis and tabes, depends largely upon a correct diagnosis by those medical men who come in contact with such cases while in an incipient state. At that time the disease may manifest itself in many and varied forms, being so camouflaged, in many instances, that syphilis may not be suspected; in fact, it is commonly the case that the patient himself does not realize that he is sick, and members of his family, after noting abnormalities of his manner and appearance, inaccuracy in the quality of his work, and that he no longer displays his former shrewd business ability, etc., are prompted to present him for examination.

A review of his complaints suggests first neurasthenia, in which condition we find him a pessimist, while in paresis he is optimistic. The neurasthenic loves to dwell at length on his afflictions, thereby differing from the paretic, in that information is brought out only after repeated questioning. His vague aches and pains simulate rheumatism and are dis-

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tinguished from leutic pains by their shooting or "lightning-like" character.

Too great importance should not be attached to a history of former infection, in view of the fact that the initial lesion may have escaped detection and further, that in probably 50 per cent. of the cases of general paresis and tabes, the characteristic secondary symptoms (skin, mucous membrane and lymphatic) fail to appear as early manifestations, according to authentic statements. This brings up a debatable question, viz: Are there two strains of spirochaeta, or is it not until late in the course of infection that virulency is attained?

Headaches, often simulating migraine, are among the most constant early symptoms, the patient complaining of "burning-drawing" sensations of the scalp. These, however, are not limited to this area, but are widely distributed, with areas of anaesthesia, hyperesthesia and a sense of formication, involving the lower extremities, as a rule.

In the tabetic form, the early symptoms in their order of importance are (1) absence of tendon reflexes, (2) Argyll-Robertson pupils, (3) Disturbed station (Romberg), (4) Girdle sensations and lancinating pains, (5) Diminution or loss of cutaneous sensibilities. It is understood that later, as the disease progresses, loss of control of bladder and rectal sphincters is observed.

Among the early manifestations of neurosyphilis we commonly observe important indications, frequently mistaken for epilepsy or apoplexy. Apoplectiform attacks occur earlier in the course of the disease than do epileptiform. In the former case, the patient has apparently had a cerebral hemorrhage, with a resulting hemiplegia, which, however, is of short duration, that is, from 6 to 48 hours. At the end of this time patient has completely regained his former function of involved parts. This condition must not be confused with permanent paralysis occurring in the course of early general syphilis, which is responsible for the majority of cases of paralysis before the age of forty.

Later, there will be noted a disturbance in co-ordination, twitching of the facial muscles; the tongue protrudes with jerky movements, and there are coarse tremors of the hands. Multiple sclerosis, paralysis agitans, encephalitis lethargica, and chronic alcoholism are differentiated by Wassermann examination. In cases presenting any of the foregoing symptoms, the eyes should be carefully inspected, it being here that thorough investigation usually reveals valuable information upon which to base a diagnosis.

Such findings as inequality of the pupils, irregularity in outline, their failure to react to light with preservation of accommodation (Argyll-Robertson pupil), or pupils unequal with sluggish reactions, when accompanied by any of the symptoms as outlined above, invariably demand Wassermann examination. A serum Wassermann is not sufficient to exclude syphilis, since in latent syphilis, more especially when the central nervous system is involved, the reaction does not show four plus in all cases, a small per cent. being either doubtful or negative.

By examination of the spinal fluid we find high pressure, increased globulin and cell count, with four plus Wassermann, almost without exception. Hence, it is the fluid rather than serum that should be submitted for Wassermann in suspected cases.

In reference to the technique of lumbar puncture, I wish to state that the former method of going in on the side line is not only difficult but uncertain as well, while the midline puncture is performed readily, with self-confidence. This procedure is simplified by placing patient in upright position, though it is unnecessary to add that less risk is assumed in the recumbent posture. It is always important to exclude brain tumor, in which condition lumbar puncture is done with great caution.

The most popular method of present day treatment consists of giving salvarsan intravenously, .5 to .6 gm., and after an hour withdrawing a given quantity of spinal fluid, 20 to 30 C. C., working upon the theory that this quantity is replaced fluids containing arsenic and benzol. This plan of treatment has proven satisfactory in the hands of some operators.

The Swift-Ellis method is also popular and is possibly practiced more extensively than all others, there being the objection that severe reactions follow in occasional cases. But the foregoing plans of treatment have been almost completely abandoned in favor of the following system of treatment.

After proper preparation of patient, salvarsan is given intravenously. On the following day, mercurialized serum, containing 1/50 grain

bichloride of mercury, or an ampule containing the same quantity of bichloride, the contents of which are thoroughly mixed with withdrawn spinal fluid, is given intraspinally by gravity.

Numerous cases could be cited as evidence of the value of this treatment in neuro-syphilis. In this connection I refer especially to intraspinal administration of bichloride of mercury and, in so doing, realize that few men today have the courage to resort to this method of giving mercury in such cases, largely on account of the reaction which usually follows.

According to my experience with bichloride of mercury, which I have given intraspinally in more than fifty instances, no method of treatment gives as satisfactory results. Inasmuch as mercury for years has been held out as a specific, why should this not be so?

Referring again to the reaction, it is sometimes slight and again severe, resembling to a marked degree meningitis, there being spasticity of the muscles of the neck, severe headaches and chills, with temperature in one instance as high as 103.6°, with severe pains along the course of spine and radiating to the limbs.

The encouraging feature is that these symptoms are of short duration. In no case have I seen this reaction continue after forty-eight hours and in the majority of instances it subsides at the end of the first day.

The following cases represent a fair average of fifty-two subjects treated.

Case No. 6065.—Male, age forty-six, and the father of three apparently healthy children. Admitted June 28, 1918, in a state of maniacal excitement. Examination shows considerable emaciation—"washed out" facial expression. No organic trouble other than that involving the central nevous system. Disturbed station and gait. Left pupil slightly dilated, with sluggish reaction to light. Coarse tremors of tongue and hands. Inaccurate articulation in quoting the phrases: "Truly rural"; "Around the rugged rock the ragged rascal ran"; "Seventh Massachusetts Light Artillery," etc.; patient having grandiose ideas with delusions of persecution.

Positively denied history of infection or former symptoms of the disease. Blood Wassermann negative. Spinal fluid clear, under high pressure, increased globulin and 32 cell count, with four plus Wassermann.

Treatment.—Salvarsan, .6 gm. given intravenously and on the following day, bichloride of mercury, gr. 1/50 intraspinally. These treatments were continued at intervals of seven to ten days for ten weeks when they were discontinued for sixty days, when the blood and fluid were again examined. Blood negative; fluid doubtful. Patient given four additional treatments, intravenous and intraspinal, when he showed negative Wassermann, at which time all former mental symptoms had disappeared. Remained in the institution for three months without recurrence and was furloughed to resume his former occupation and business relations. Returned to the hospital after one year for re-examination, the same being negative, with no mental aberration.

Case No. 6171.—Admitted November 14, 1919. Male, age 48, of German descent. This patient had escaped from a psychopathic hospital in the city of St. Louis, was arrested and lodged in jail in the city of Roanoke, later adjudged insane and committed to the Southwestern State Hospital, in a state of marked mental disturbance.

Like the majority of paretics, this patient had delusions of grandeur and persecution, with the prominent characteristic neurological symptoms of general paresis. Diagnosed as paretic in former hospital, also. A distinct feature in his case was an offensive nasal necrosis of long duration, which promptly cleared under treatment. Was given intravenous salvarsan weekly, with bichloride intraspinally each succeeding day, until ten such treatments had been given, with perceptible improvement following each treatment. I failed to state that both blood and fluid in this case showed four plus Wassermann. After completion of course of treatments, both blood and fluid were negative, with mental improvement to such an extent that patient performs assistant work to attendants in a manner thoroughly satisfactory. No remissions after a year.

Case No. 6472.—This patient voluntarily came to the hospital for treatment of morphinism, claiming that he acquired the habit as the result of neuritis, which condition had existed for three years. Morphia was the only drug which gave relief, having formerly been prescribed by his family physician. Examination showed involvement of the brachial

plexus, with sensory and motor ulnar disturbance.

Inspection revealed marked pupil inequality, sluggish reaction to light, with fair accommodation. Patient admitted specific infection twenty years before, but insisted that he had been cured of the disease.

Blood Wassermann negative (twice made). Lumbar puncture showed fluid clear, under high pressure, forty pleocytes to the C. Mm. with increased globulin content. Wassermann four plus.

This patient had no delusions, illusions or hallucinations; in fact, at no time had he shown mental symptoms, and he was finally convinced that his neuritis was due to specific infection and readily submitted to treatments. Was given three intraventous doses of .6 gm. each of salvarsan, at intervals of every tenth day; each succeeding treatment was followed by bichloride intraspinally, at the end of which time the blood still being negative, intravenous medication was discontinued.

I wish to say that occasionally in cases of syphilis you will find the blood negative to Wassermann, while if from .2 to .3 gm. of salvarsan be given as a provocative, you will get a positive reaction. Bichloride was given intraspinally every ten days to two weeks, according to reactions, until spinal fluid was negative to Wassermann, with a disappearance of his former neuritis.

Patient was kept under observation for six months, with no evidence of a recurrence of his former symptoms.

Southwestern State Hospital.

THE TREATMENT OF SYPHILIS.*

By PHILIP S. SMITH, M. D., Abingdon, Va.

The subject assigned for this paper is too broad to attempt anything more than a brief outline of the more salient points which may prove of interest to the average physician. For this reason, references to the literature have been purposely avoided. Syphilis, as we all know, may be an acute fulminating disease, or, on the other hand, may present itself as a most insidious, chronic malady—the type depending largely upon the virulence of the infecting organism, the resistance of the infected individual, and the stage in which the patient offers himself for treatment. It is neither expedient nor possible in the limited time available to attempt any discussion of the treatment of the ravages left in the wake of syphilis, for such a diversion would lead to an endless maze of therapeutics, including, among others, aortic insufficiency, aneurysm, ocular lesions, pathologic conditions of the liver, kidneys, spleen, etc.

The treatment of the disease, itself, is eminently satisfactory in one particular, in that we have available one or more drugs that may be regarded as specific—a fact, unfortunately, that is all too rare in medical therapeutics; for, with the exception of quinine in malaria, antitoxin in diphtheria, thyroid extract in myxedema and cretinism, and possibly digitalis in myocardial insufficiency, we are too often confronted with the inability to do anything more in the exhibition of drugs beyond the treatment of symptoms, relying upon nature, rest and nursing to effect a cure. Each one of us must have experienced the one disillusionment common to physicians in being rudely brought face to face with the fact that the medicine given us in our childhood and adolescent years by the family physician, after feeling the pulse and observing the condition of our tongue, was not the one specific agent working the miraculous cure we then attributed to it.

To treat syphilis successfully, one or two essentials are necessary. The first and most apparent factor is a correct diagnosis. This statement may seem so trite and obvious as to appear not worthy of mention here. Yet, how many of us have had the experience of seeing a patient, who stated that he had previously acquired a venereal infection thought to be syphilis, and was so treated for a variable length of time, with no proof clinically or from a laboratory standpoint that the primary lesion was a chancre? Perhaps he may have been infected with the treponema pallidum and now gives a negative Wassermann as the result of treatment; or, on the other hand, the ulcer may have been a chancroid. The question then naturally arises, "Was he ever luetic, and does he need further anti-syphilitic treatment now or in the future?"

This question logically leads to the value of the laboratory in the diagnosis and treatment of syphilis. The differential points in distinguishing clinically between a chancre, chan-

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croid and an infected herpes are of distinct value; yet oftentimes the appearance of the lesion, the patient's history of the time of exposure and incubation period are not sufficient to warrant a definite expression of opinion. Here the laboratory technician, by making a microscopical examination of the material obtained from the ulcer with the dark field illumination, or by the Wassermann reaction, can afford most valuable aid in instituting early treatment.

Furthermore, to treat a patient with syphilis successfully, it is essential to secure his full co-operation. He must be made to understand in advance that he is the victim of a chronic, systemic infection; that his primary lesion is merely the portal through which the infecting organisms entered; that the cure or disappearance of the chancre, mucous patches, skin lesions, gumma, etc., does not mean that he is well; that the treatment is necessarily expensive and inconvenient; and that his business and pleasure may have to be temporarily interrupted or sacrificed. Unless these facts are understood, the results in the vast majority of cases will be unsatisfactory to the physician and eventually to the patient. Fortunately, as the result of propaganda conducted by the State Boards of Health, and by other organizations, including Federal agencies, the public generally is much more familiar, not only with the frequency and danger of the disease, but with what is required of a patient who undertakes treatment. The information recently gained by four million men in the military and naval services regarding this subject has been extremely beneficial.

The history of the development of modern anti-syphilitic therapy is one of the brightest chapters of medical literature. Probably there is no other disease, tuberculosis not excepted, in which the treatment advocated from time to time has been so diversified. The pharmacopeia of today still mentions in an apologetic manner a number of drugs which were formerly believed to be of value in the treatment of syphilis. This fact has been utilized commercially by fakirs the world over in offering their misbranded nostrums to a gullible public as "blood specifics and purifiers." Such a deplorable state of affairs has resulted from a number of causes, among which may be mentioned the widespread incidence of the disease affecting royalty and peasant, the rich and the poor, the socially elect and the outcast. Furthermore, the victim of the infection, if acquired in the usual manner, is conscious of his stigma, and oftentimes seeks the covert and "back-door" means of taking treatment for fear of publicity. It is hopefully believed that the time is not far distant when Federal and State authorities will impose such restrictions upon the claims and sales of these patented products as to make the business unprofitable.

Out of all the confusion in the past resulting from the numerous drugs advocated by conscientious physicians for the cure of syphilis, the worthless agents have, in a large measure, been replaced by a few that form the basis of scientific therapy today—namely, mercury, arsenic and the iodides. And yet, with this limited number of proven value, the subject of anti-syphilitic treatment is still far from being closed. The advances in recent years are but a stimulus to still better things in the future. Admitting that the three drugs mentioned are the main reliance of the physician, the large number of preparations of each, official and unofficial, with the tempting statements made by commercial laboratories that their special formula is equally as efficient and more easy to administer than those generally used, has resulted in a variety of substitutes more or less worthless. Osler, in paraphrasing the Scriptures, "Know syphilis, and all things medical shall be added unto you," had in mind chiefly the diagnosis of the disease; yet the truth of his statement applies in a large measure to its treatment.

The inclusion of the iodides as one of the specific agents mentioned must be qualified to some extent. It is now generally agreed that these salts are in no sense spirocheticides—their value consisting in the alterative effects which they possess. For instance, in the absorption of products of a disintegrating gumma, and in the effect they exert on the sclerotic walls of a chronic aortitis and the connective tissue proliferation replacing the highly specialized cells of the central nervous system resulting from old syphilitic changes, the iodides are of undoubted value when administered in increasing doses to the point of tolerance.

For many years, mercury has been the mainstay of the physician in dealing with the luetic. In spite of time and changing opinion, it has stood the test as the most active and

potent agent in destroying the spirillum of syphilis. Aside from the psychic effect on the patient, it has been fairly conclusively proven that of all the preparations of mercury the ointment is the most efficient form in which to administer the drug. It is true that its use is offensive to the more esthetic, and yet the patient is made to feel that he is actively engaged through his own efforts in effecting a cure. Our practice is to write for the dilute ointment and instruct the patient to cleanse the skin with ether before beginning the inunction, thereby mitigating the occurrence of a troublesome dermatitis. The sites selected are the non-hairy inner aspects of the thighs and the sides of the chest walls. Alternating between these four areas in consecutive order, he is told to rub the ointment in thoroughly until it disappears, using, roughly speaking, an amount equivalent in size to the last phalanx of the thumb. A hot bath at least once a week is advised, and the treatment continued six days a week until the initial evidences of salivation or other symptoms indicating maximum tolerance appear. A rest interval of from one to two weeks is usually sufficient when the treatment may be resumed. It is highly important that the teeth should receive proper dental attention and the mouth kept in the best possible condition.

If, for any reason, the ointment cannot be used, another preparation of value is the salicylate of mercury, which is usually given once a week, intramuscularly, in the dose of one grain. It has been recently demonstrated, however, that in a large series of cases a positive Wassermann was influenced in only 9 per cent. of the cases treated exclusively with this preparation in the dose mentioned. The investigator concludes that the dose should be not less than 2 to 2½ grains if improvement is to be expected. This method of treatment has one advantage in making it necessary for the patient to report to the physician at regular intervals, giving the latter an opportunity of observing any improvement or untoward effects resulting from the drug.

The bichloride of mercury has enjoyed a popularity for many years as an anti-syphilitic agent. Until recently it has been given by mouth and in most cases is fairly well tolerated. The practice of administering it combined with the iodides is not a wise one, since oftentimes the latter drug can be increased much more rapidly and to a greater extent than is possible with the corrosive preparation of mercury. The same objection applies to the protiodide pills with the additional disadvantage that the pills, when old, frequently become more or less insoluble and have been found to accumulate in the patient's intestinal tract from which they are expelled unchanged.

The objections against the use of mercury have been based on the fact that in large doses it frequently results in salivation and irritation of the gastro-intestinal tract and kidneys, particularly. Furthermore, treatment must be continued over such long periods of time that the patient, becoming weary in well doing, fails to report for observation and advice, and finally, skeptical or indifferent, decides to stand or fall on what he has already done. Conscious of these disadvantages in the use of mercury, and prompted by the ambition to discover an equally efficient spirocheticide with none of its untoward effects, Ehrlich, after a long series of experiments with arsenic, offered to the medical world his well known salvarsan and neo-salvarsan. Its reception at first was heralded as a certain cure of syphilis in any form or stage; its action was prompt, complete and the luetic was made to feel that he had washed in the Pool of Siloam and was thereafter healed. As time passed, however, the remarkable "cures" first attending its use began to return with clinical manifestations of a recurrence of symptoms, and syphilographers were soon forced to admit that arsenic, even in the tremendous doses made possible of administration by Ehrlich's formula, could not supplant mercury altogether in the treatment of lues. Disappointing, in some respects, as were the initial observations of the effects of salvarsan, there is no one today at all conversant with the subject, who will not admit that as an agent for quickly controlling the ravages of syphilis, whether of the primary, secondary or tertiary type, arsphenamine is pre-eminently the choice of drugs. When used in conjunction with mercury we have the best possible combination yet devised for the treatment of the disease.

It is not possible in this paper to discuss the frequency or types of untoward reactions resulting from the use of arsphenamine. It is sufficient to state that, while at times such reactions do occur following the most careful technique, the risk of serious harm to the pa-

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tient is exceedingly slight—in fact, almost negligible if the proper precautions are taken. This implies a thorough examination of the patient before the initial injection and a urinalysis before and after each treatment. While aware of the fact that arsphenamine is more potent than the neo-arsphenamine, the latter preparation for some time has been our choice because of its relatively greater safety. With the exception of chilliness, nausea, headache, slight fever and occasional vomiting, we have seen no reaction of any moment. Even the symptoms mentioned are the exception rather than the rule.

Our practice is to begin with .3 gm. if a reaction seems likely or if the patient's condition, for any reason, suggests the undesirability of a larger initial dose; otherwise .6 gm. are given. The second injection is usually greater by .3 gm., with .9 gm. as the maximum dose. Unless there are contraindications the treatment is repeated at intervals of five days, six injections constituting a series.

The drug is dissolved in freshly distilled, sterile, filtered water to which sodium chloride is added before boiling, in the strength of a physiological salt solution. Ten c. c. of this solution are used for each decigram of the drug to be administered. When thoroughly dissolved, it is given at room temperature (70° to 80° F.). After a tourniquet is applied to the arm and the cubital fossa cleaned with iodine and alcohol, the disconnected needle is first inserted into the vein until the blood flows freely through it. The tourniquet is released, and while the connection is being made between the tube and the needle, salt solution is run through to avoid the possibility of air entering the vein. If no mass appears above the point of puncture, proving that the needle point is still within the vessel, the arsphenamine solution is added to the funnel before the saline altogether disappears. Control of the flow is maintained by lowering or elevating the funnel or by means of a stop-cock. Rapid administration is highly undesirable. Following the injection, the patient is kept in bed for twenty-four hours on liquid diet.

Time and your patience do not permit of a discussion of the intraspinal treatment of chronic cerebro-spinal syphilis with salvarsanized and mercurialized serum, as advocated by Swift-Ellis, Ogilvie and others. It must be admitted, however, in spite of its critics that, whether from the reduction of the intraspinal tension incident to the lumbar puncture or from the direct application of the drug to the regions affected, improvement, unobtainable otherwise in advanced tabes or paresis, oftentimes results.

The most difficult problem connected with the treatment of the syphilitic is, "How long shall we treat him?" In other words, "When is he well?" No definite answer can be made to these questions, for each patient is a law unto himself and the treatment must be individualized. The only general rule that can be applied is that it is better to over-treat than to stop prematurely. In any event, it must be continued vigorously until the clinical symptoms disappear and the blood and spinal fluid Wassermanns remain negative for three to six months after all medication is stopped. Repeated blood and occasional spinal fluid tests should then be continued at intervals of six to twelve months for several years, and the patient advised to regard any subsequent symptoms as a manifestation of recurrent syphilis until proven otherwise.

The best authorities agree that a patient seen with early manifestations of the disease should be advised against marriage or sexual intercourse within three years following the date of his infection—and only then if the treatment has been thorough and he has been free from symptoms and Wassermann negative for at least one year. Here the proverbial "ounce of prevention" is worth many pounds of mercury and arsenic.

Of course, it is realized that certain forms of tertiary syphilis with cerebro-spinal involvement can never be cured and that treatment merely renders the patient's existence more tolerable. With such an unfortunate one, arsenic, mercury and the iodides must make up a part of his medical diet remittently until intercurrent secondary infections or organic visceral break-down transfer him from the hands of the physician to those of the undertaker.

Summary.

1. The successful treatment of syphilis implies a correct diagnosis, proper laboratory controls, and the full co-operation of the patient.

2. Mercury and arsphenamine are the most efficient drugs available for combating the disease. The ointment is promably the most

active preparation of mercury for this purpose, and the intravenous use of neo-arsphenamine is the most satisfactory method of administering arsenic in the average case of syphilis. With proper technique few reactions result.

3. Iodides are of value chiefly in tertiary syphilis because of their alterative effects.

4. Intraspinal treatment of chronic cerebrospinal syphilis with mercurialized and salvarsanized serum is advisable when other measures fail.

5. No general rule can be offered as to the length of time treatment should be continued.

6. Early syphilis, vigorously treated, is curable or controllable; in tertiary syphilis involving the central nervous system the prognosis is poor.

A FEW POINTS IN THE DIFFERENTIAL DIAGNOSIS OF PULMONARY DISEASE.

By E. E. WATSON, M. D., Salem, Va.

Since the recent terrible pandemic of "flu," the diagnosis of pulmonary conditions has occupied such a prominent place in medical literature that one hesitates to attempt a further discussion of this topic. The difficulties in diagnosis which the lungs present, however, even to those supposedly skilled in this field of work, would seem to warrant a brief review of this subject.

In a discussion of chronic pulmonary lesions, we must necessarily deal largely with tuberculosis, not only because of its unfortunate prevalence, but because of the grave results to both patient and family, that attend a delayed diagnosis. Only by a fairly early diagnosis can a patient hope to regain his health sufficiently to resume his place in the social and business world; only by an early diagnosis can he know to take the necessary precautions to prevent his passing the scourge to his children and family.

We have in the tuberculin test a very accurate test for tuberculous infection, but unfortunately it is not a specific index of the disease tuberculosis. The only absolute proof of clinical tuberculosis is the finding of the tubercle bacillus in the sputum, and to wait for its appearance is often to defer the diagnosis till the lesion has become hopelessly advanced. Often we can use all the painstaking care and skill at our command, and then must be content to make a diagnosis of tuberculosis by exclusion.

A detailed painstaking history combined with a thorough knowledge of the symptoms and pathology of the disease, and consequent ability to interpret the history correctly, is of the greatest value. The two symptoms, the importance of which I wish to emphasize, are hemoptysis and pleurisy. Hemoptysis, particularly when "coming from a clear sky," demands a diagnosis of tuberculosis until some other etiological factor can be conclusively proven. Likewise, acute pleurisy, either with or without effusion, is as a rule only a symptom of pleural or pulmonary tuberculosis and should be so considered until proven otherwise.

In examining the chest, the patient should always be stripped to the waist and the back examined as carefully as the front. Persistent rales heard over the upper half of the chest, and which are accentuated by having the patient expire fully, cough once and inspire, mean practically always tuberculosis.

The dictum that basal rales, when apex is clear, should be considered non-tuberculous till proven otherwise, is probably a good working hypothesis, but one that, from my experience, should not be adhered to too strictly. The post-influenzal sequelae have been so varied and so confusing as to make us more reserved and less dogmatic in our diagnosis of chest conditions. I believe that most of us are too prone to blame everything on the flu, before we have given the patient the benefit of a thorough examination, including laboratory and stereoscopic X-ray studies. Particularly is this true in the case of basal lesions. I have been, on more than one occasion, much embarrassed by reporting basal lesions as non-tuberculous even after making X-ray and laboratory studies, and a short time later the sputum would be loaded with bacilli.

For many years there has been a controversity between the internist on the one hand and the X-ray specialist on the other, as to the comparative value of the physical examination and the X-ray in the study of the lungs, and other chest conditions. The internist has been slow to admit the value of the X-ray, due principally to the frequency of mistakes in interpretation made by men attempting chest X-ray

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without having as a groundwork an adequate and thorough knowledge of chest pathology. To quote Dunham: "The X-ray is only an instrument which accurately records different degrees of density, and it is for us to interpret these densities into terms of cellular pathology." Any one can learn the technique of taking good stereoscopic plates in a few weeks, but it takes years of experience to "interpret that plate into terms of cellular pathology." I would strongly urge a fluoroscopic and stereoscopic study of all doubtful chest conditions and, when possible, the clinician should discuss the clinical findings as well as go over the plates with the Roentgenologist.

Since frequently the first symptoms of pulmonary tuberculosis are those of a low grade toxemia, the focal infections—teeth, tonsils, sinuses—must be eliminated.

Every examination of the chest should begin with the nose. Nasal obstructions with consequent mouth-breathing evoke symptoms—cough, expectoration, pains in chest, general malaise—symptoms simulating tuberculosis to such an extent as to make the positive exclusion of phthisis extremely difficult.

Syphilis is sometimes erroneously diagnosed tuberculosis and a routine Wassermann is of inestimable value. Syphilis of the lung, however, is less frequently found than some writers would have us believe.

The presence of cardiac lesions, particularly mitral, demand the elimination of a pulmonary infarct, which may reveal physical signs, including rales in upper half of lung, identical with those produced by a tuberculous infiltration.

Hyperthyroidism, which classically simulates the symptom-complex of early phthisis, is very prevalent in the mountains of this State and, when associated with slight pulmonary findings, makes the differentiation between an active and latent lesion well nigh impossible. The Goetsch test is of much real worth in helping clarify these cases.

In those conditions where we have extensive physical findings as well as marked symptoms, frequent and repeated sputum examinations become a very important procedure. With advanced pulmonary lesions, negative sputum is strong evidence against tuberculosis, but this, like basal moisture cases, will often lead us into error if we become too dogmatic, as it is not unusual to find repeatedly negative sputum in chronic advanced tuberculosis.

In my experience, those conditions most frequently erroneously diagnosed as tuberculosis are bronchitis, pulmonary abscess, bronchiectasis, and malignant new-growth of the lung and pleurae.

In conclusion, I would call your attention to the fact that too many cases of tuberculosis become advanced and too often hopelessly so, as a result of our failure to recognize the lesion at a time when we should have, had we done our full duty to ourselves and our patient. I am mindful, however, of the fact that not every case has an early stage. A patient in apparent health may have a rupture of a tuberculous bronchial gland, thus flooding with infection one or more lobes of a lung, in which case the disease is advanced from its very inception.

By correlating the history, physical, laboratory and X-ray findings, a fairly accurate diagnosis can, as a rule, be made.

In presenting this subject to this Society, I am sensible of the fact that I have, in a very disconnected and cursory manner, mentioned only a few elementary points in the diagnosis of pulmonary conditions, but trust that it may add some stimulus toward a continued and increasing interest in chest diagnosis.

Mount Regis Sanatorium.

A PLEA FOR THE PHYSICAL EXAMINATION OF SCHOOL CHILDREN.*

By CHAS. E. DYER, M. D., Pulaski, Va.

We will, no doubt, differ widely as to the best means of handling this—the most vital health problem now before the profession and the public—but I am confident of your unanimous endorsement of one feature of this paper, its length, for I fully assure you in the beginning that it is very brief. Yet the health of our children in general and the school children in particular is beginning to receive its appropriate but long delayed consideration. Some States (and let us hope that Virginia will soon be one of them) have enacted laws whereby physical examinations of children are made annually during the first days of the school session, and our colleges are realizing the importance of knowing the health status of their students, but, so far as

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I am informed, only one has adopted physical examinations of the students as a routine. Although nearly all require a certificate of good moral character before entrance is possible, they seemingly are not concerned as to syphilis and tuberculosis.

We should take time to think of the scope and possibilities of such examinations when systematically made. Beginning with the scalp, we should look for eczema and for other things which, more often than is suspected, are present and, when so, will spread to others and cause much embarrassment to the innocent victims and humiliation to their mothers. Think of the percentage of defects that would be found and how easily they may be corrected at this period of life and how, when neglected, they will add to the toll of suffering and loss of health and happiness.

The nose—the most shamefully abused organ in the body, surgically—so often harbors bacteria of contagious diseases that it would be interesting to know the percentage of our school children that are carriers and distributors of contagious diseases. If you are not interested in this feature, do you not believe the most inspiring and helpful picture imaginable would be one thousand school children lined up after lunch going through a toothbrush drill for five minutes?

As we descend in this inspection, looking at the organs as we come to them, we note open and discharging tubercular cervical glands which offer their daily capacity of possible—yea, very probable—infection to others. Valvular cardiac disease would be found; also incipient tuberculosis. Again, by looking closely at chests, some would reveal nail scratches. If in straight lines, the indirect cause will be found in the seams of the clothing or nearby, but, if revealed with numerous small punctures, the cause, a parasite, is within. Simply revealed but seldom discovered, poison oak gets the credit for these sores, if by accident the teacher should see them. Though seldom found, the sores last throughout the session and others get them. Passing to the feet, many will have pes planus in various degrees, which can be easily benefited, if not entirely relieved, by properly adjusted adhesive straps which in later years offer little possibility of material benefit.

In this survey we note what would be accomplished by thorough examination of organs and regions as approached. Some may think best to begin at the feet and ascend; I prefer to start with the scalp and descend—work being accomplished a degree easier when assisted by the law of gravitation. I trust no one will advocate beginning in the middle and skipping here and there, omitting important organs entirely, and finally falling down on the examination. Our wide-awake and most successful corporations have their employees examined annually, and those in whom defects are found are shifted from one occupation to another better suited for their physical and mental conditions.

No one should be allowed to make these examinations except a member of the ancient and time-honored allopathic school of medicine, thus eliminating without consideration all other so-called branches of medicine which, in reality, are empty and barren "paths"; the teacher, who could do no more than to strongly advocate its importance; and the nurse, wonderfully trained and helpful in her line but not along lines which make her inspection of any value. For her to attempt it would only confuse the public and probably disgust the pupils.

We are making progress in other fields. Many counties in the State have county farm demonstrators, for example, who spend nearly all of their time trying to teach the farmers how not to farm, but we have no one to inspect our school children and teach them the simple rules of health, and to locate their defects which, when taken in time, amount to so little, but, if neglected, lead to serious consequences. The farmer knows the qualities of a horse and will see even a spavin the size of a buckeye across the street, but would be much surprised if informed that his son has a hernia twice as large, or that both son and daughter have urine loaded with albumen or sugar. He will remove and isolate a sick animal from the herd to protect the others against the ravages of disease. He knows full well the value of vaccine against black leg and cholera. His trees are sprayed in order to obtain better fruit, but few ever heard of the Schick test for susceptibility to diphtheria, or inoculation against typhoid. He often hears Johnnie complain of headache when attending school, especially when preparing for examinations. The doctor has been consulted who promptly administers coal tar derivatives for the alleged

neuralgic malady when a momentary examination of his eyes would reveal defective vision. Many pupils go through our high school with refractive errors sufficient to deny them seeing the figures on the black board. They are often considered mentally dull when the trouble is either bad vision or bad hearing, constipation, extreme and youthful use of cigarettes, lack of stimulation corporally applied, failure to obtain restful sleep from post nasal space chocked by adenoids, and many other things too numerous to mention, including a paramount and ever present desire to shoot crap.

Who is to blame for the belief among the laity that the cessation of menstruation causes tuberculosis, instead of *vice versa?* A great deal of ignorance and even superstition is due to our continued failure to inform the public of fundamental facts that every one should know and the seeming desire on the part of some members of our profession to enshroud in mystery all the ailments and even the most simple truth concerning the human body.

The *modus operandi* of infectious and contagious diseases which so often visit our schools, causing much expense, loss of time, health and life, surpasses our understanding and, when an unusual or not suspected disease makes its appearance, many things are suggested, but the diagnosis is not arrived at until much damage has been done. At Camp Greenleaf, Georgia, in January and February, 1918, where about eight hundred physicians were receiving their intensive military training, all sooner or later contracted the so-called camp cough, for no one escaped. On my way there, I met one of the best diagnosticians in Southwest Virginia and one of our most active members, who informed me that the trouble was due to a streptococcus infection. No one ever called it influenza, though each case presented more clearly than a text book could describe it the respiratory form of influenza. As I think of it now, I can easily recall having seen all three forms of influenza.

It is not unusual to find three or more cases of infectious disease in widely separated sections, and upon inquiry to discover that all came from the same school room, but we have no idea of the origin of the infecting agents. At times the indication is that a fearful epidemic is imminent, but it passes off; then, when least expected, we have an epidemic of serious character. To my mind the leading factors are the human and animal carriers of disease, including the town cow, which is probably the star actor. The old theory of germs lodging around for twenty years or more, then suddenly being carried in clothing, and being divided into three equal parts, never appealed to me. Up to the time of the World War much was written about "Typhoid Mary" as if she were some strange freak of nature and practically the only one that ever existed. But carriers are always found when infectious or contagious diseases are present.

In case of infectious diseases continuing to come from one school room, the daily spraying of the nose and throat of that class with proper antiseptic solutions for two weeks would probably end the malady. If not, it would place these organs in a better condition if the disease became inevitable. In the event of a case of diphtheria, for example, in a home where there are from six to a dozen children, prompt isolation and the daily or t. i. d. spraying and cleansing of the others would do more than any fumigating process ever practiced.

ROENTGENOLOGICAL AND CYSTOSCOPIC EXAMINATION OF CERTAIN ABDOMINAL DISEASES AT FIRST DIAGNOSED APPENDICITIS.*

By B. E. RHUDY, M. D., Abingdon, Va.

This paper is based on a series of cases, comparatively small to be sure, that have come under our observation during the last twelve months, a few of which I wish to report. They proved to be extremely interesting in every instance, have taught us some very impressive lessons, and have led us to the conviction, along with others, that diseases of the urinary tract, especially kidneys and ureters, are far more prevalent and account for more abdominal pain than we are accustomed to thinking.

The classical text book picture of pain beginning in the superior lumbar region, radiating to the lower abdomen and to the genitalia or thigh, is undoubtedly the most typical picture of renal colic; however, it is not appreciated how often this typical picture is absent; much less is it appreciated that pain

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arising from diseases of the upper urinary tract is often purely abdominal in type with no pain in the back whatsoever. Cecil, of Los Angeles, in reporting a review of 300 cases in which a complete urological investigation had been carried out on the upper urinary tract, found in a group comprising 67 cases with stone in kidney or ureter, that only 21 cases presented typical renal pain; that is to say, pain in the region of the superior lumbar triangle that tended to radiate down the course of the ureter. Nineteen cases presented pain in the abdomen alone. It is interesting to note that 28 per cent. of the cases of stone in kidney and ureter presented abdominal pain without pain in the back. When the pain was present in the lower quadrant, it occurred in the neighborhood of McBurney's point, if on the right side; and in the corresponding area, if on the left. The distribution of pain when in the upper abdomen was usually just beneath the border of the ribs, about the mammary line or a little mesial to it. In case the pain was limited to the epigastric region, it was described as a "deep in" pain and would not, ordinarily, lead one to think of a renal condition as its origin. In 26 cases, pain in the back was associated with pain in the abdomen, and in some instances was overshadowed by the latter.

In getting a history from a patient, we know of no more indefinite and elusive account than that given of the action of the kidneys and the relation thereto: therefore, we should always bear this in mind and no examination, in my opinion, is complete without a microscopical urinalysis, and, in case of females, the specimen should always be obtained by catheterization.

We are aware, of course, that in certain abdominal diseases other than of the urinary tract, we may expect to find leukocytes and red blood corpuscles in the urine, such as in acute post-cecal appendix tied down by adhesions, or tubo-ovarian diseases. On the other hand, a patient may give a history of bladder trouble with frequent and painful urination, which must be looked on with suspicion, as more accurate study of renal infection has led to the general knowledge that a large number of the many (especially females) suffering from symptoms of cystitis are really suffering from pyelitis, stricture of ureter, or both; or tuberculosis of the genito-urinary tract; and that, when these are treated, the cystitis disappears. Formerly we were taught that calculus in the upper renal tract always caused blood in the urine, at least in microscopic quantity. More recent observation of long series of cases of renal calculus show that blood may be absent in from 14 per cent. in 150 cases reported by Cabot to 20 per cent. in 294 cases reported by Braasch and Moore.

To Hunner, of Baltimore, should be given credit not only for having aroused the interest of urologists but clinicians and surgeons as well, to making a more careful study of the renal tract and the significance of the urinary findings.

Only within the last six or seven years have we begun to appreciate that ureteral stricture may give rise to precisely the same symptoms and signs as ureteral or renal calculus, and that stricture and its sequelae must, therefore, be considered in attempting to diagnose the cause of obscure pain in the abdomen. Hunner believes that ureteral stricture is one of the most common causes of abdominal symptoms, especially in women, and that unrecognized ureteral stricture leads to more needless and fruitless abdominal operations than any other pathological condition. These operations in the probable order of frequency are for appendicitis, ovarian disease, uterine and pelvic disorders, floating kidney, especially the type with hydronephrosis, gall bladder investigations and abdominal explorations for intestinal obstruction and adhesions. In addition to the operations, there are prolonged treatments and rest cures for gastro-intestinal and other abdominal symptoms, treatments for sacral joint trouble and for sciatica. On the other hand, in dealing with a condition which occurs so frequently, if we are not constantly on our guard, we may persist in treating a ureteral stricture, after the symptoms due to it have subsided, and neglect to remove a diseased appendix or gall bladder which are crying out for attention; or we are liable to overlook a spinal arthritis or sacral joint disease; for they may come from the same source of infection that causes the stricture. In case of complete obstruction of the affected side, either from stone or stricture, there may be temporary absence of abnormal elements in the bladder urine. A patient with stricture or stone may show practically normal urine during the quiescent stage; whereas, an

examination during or just after a renal colic is likely to reveal leukocytes or red blood corpuscles, or both. The urinalysis probably does not help in differentiating these two conditions; furthermore, it may prove harmful to the patient, when the finding of a normal urine has diverted the diagnostician from further investigation of the urinary tract. However, when a stricture or stone is associated with infection, we rarely find a pure bacilluria, but usually a bacilluria with pyuria, and with these, most often, some red blood corpuscles.

There is little known concerning the etiology of these diseases. All of our patients were examined, as are the majority, as a routine, for foci of infections in organs such as teeth, tonsils and sinuses with very indefinite results in most every instance; that is to say, that to no one organ or focus can the credit be given as the origin of infection in a large percentage of the diseases of the upper urinary tract. Neither does the space of time nor the limit of this paper permit a further classification and discussion of the many lesions of the urinary tract or of the diseases of other organs of the abdomen.

No. 4635. Mrs. K. M., age 28. November 4, 1920. Complained of abdominal pains since age of 16; had no relation to periods; paid little attention to them until she married two and a half years ago. One year after being married became pregnant, then had uterine hemorrhage and aborted in four months. February, 1920, she aborted again. In spite of this, she felt well until July, 1920, when she developed fever, headaches and weakness with pain at lower right costal border. Temperature as high as 104.6; was ill for seven weeks, rising when fed anything; somewhat constipated. Kidneys said to have acted normally but had sensation of full bladder; convalescent by latter part of August. Has been under care of several physicians; their opinions varied from pulmonary tuberculosis to gall bladder disease and appendicitis; she was advised operation for gall bladder and appendicitis.

F. H. S. Exam. Very well developed woman, not acutely ill, but on other hand suggesting chronic infection. Pulse regular, small 112 to the minute, blood pressure 102/80. Temperature febrile since admission to hospital. Lungs negative. Abdomen flat. Quite tender at McBurney's point, but some tenderness over entire right side, especially bimanual palpation right kidney. Some slight pelvic involvement. Hemoglobin 80 per cent.; white blood cells 14,000. *Differential*: P. 82 per cent.; S. 11.5 per cent.; L. 6.5 per cent.; E. 0 per cent. (Average 200 cells.) *Urinalysis*: Straw colored, cloudy, acid, specific gravity 1.018, no sugar, albumen faint trace. Microscopical examination: Loaded with pus and motile bacteria; occasional r.b.c.; few squamous epithelial cells.

F. H. S., Impression. Chronic appendicitis; chronic pyelitis, bilateral. Wassermann negative. Referred for cystoscopy. Bladder, mucous membrane clear, both ureters catheterized and specimen submitted to laboratory. *Right kidney*: Considerable squamous and round epithelial cells, few leukocytes, r.b.c. and bacteria. *Left kidney*: Round epithelium, few leukocytes and r.b.c.

Diagnosis: Low grade pyelitis, bilateral; received treatment. Discharged November 16. Improved to return in thirty days to check up results.

December 15. Patient has gained 8 to 10 pounds, feels much better, appetite good. Catheterized urine practically negative. Patient does not receive treatment.

April 1, 1921. Patient comes in on husband's request to check up on results. She has gained several pounds and is feeling good. History 3½ months' pregnancy. No urinary disturbance. Ureters catheterized; laboratory examination shows kidney practically negative.

No. 4463. Mrs. B. H. September 6, 1920. Age 34. General health good until December, 1918, when she had flu-pneumonia with abscess on left lung, and was confined to bed seven weeks. Since that, short of breath; otherwise well. Frequent attacks of tonsillitis; no rheumatism. Stomach trouble manifested by attacks of acute indigestion and pain, relieved by vomiting. No jaundice. Four years ago voided bloody urine for about three weeks; was pregnant at time. Menstrual periods normal, suffers worse with right flank at menstrual periods.

X-ray examination is negative for stone. Cystoscopy, bladder: urine quite bloody. Bladder: mucous membrane clear. Ureteral opening negative; unable to pass right catheter more than 2 cm. Uric acid crystals and

few leukocytes and r.b.c. DIAGNOSIS: Stricture right ureter. Patient did not return but went to Asheville, N. C., where she was cystoscoped and diagnosis of stricture of right ureter was confirmed. Returned for treatment, was able to pass No. 6 F. catheter and treatment of kidney was given. Discharged; improved after two treatments.

No. 4393. D. P., male, age 31. August 12, 1920. Admitted with diagnosis of chronic appendicitis with an acute exacerbation for last 24 hours. Complicating disease chronic urethritis. Prepared for operation. In meantime, urinalysis shows many pus and r.b.c. and crystals in urine; tenderness over right side. Operation called off. Referred for cystoscopy. Bladder negative. Unable to pass left catheter. Right is passed and shows r.b.c. and few pus cells. DIAGNOSIS: Stricture in vesicle wall. X-ray of renal tracts negative. Patient insisted upon going out to return for further treatment at own discretion. Has not returned.

No. 4308. Mrs. C. B., married, age 63, mother of eight children. June 11, 1920. Operated on November, 1919, elsewhere; appendectomy, releasing adhesions, taking up ligaments of womb and repair of perineal tear. Complains of pain in lower abdomen of 15 years' duration: no relief from operation, symptoms being about same as before. No nocturia: day frequency one to three hours; dysuria only for past few days. Thirty years ago passed gravel size of "pheasant's egg" and several smaller ones. Fifteen years ago she felt sensitive lump in left side, at times filling almost entire space between costal arch and crest of ilium. Three weeks after appendectomy patient had extreme pain in left side. Has not noticed any gross blood in urine since she passed stones from bladder. Physical examination does not reveal lump in side. Catheterized specimen of urine shows few r.b.c., 20 to 25 pus cells to field and teeming with bacteria. IMPRESSION: That of left ureteral obstruction or spondylitis, lumbar region, favoring latter. June 16th, referred for cystoscopy and X-ray examination lumbar spine. Bladder negative. Ureters negative. Separate kidney function. Right showed up in ten minutes 8 c.c., in fifteen minutes, 3 per cent. Left showed only mere trace. Blood, pus, bacteria and hyaline casts. Roentgenograms before injection negative for stone: also spine negative. Injected kidneys and pyelograms made. Right apparently normal. Left did not fill; no evidence of dilated ureter.

On June 25th separate function right kidney 80 c.c. in 15 minutes, 7.5 per cent. dye. Left, 12 c.c. in 15 minutes, 1 per cent. of dye. Diagnosis made of cystic degeneration of left kidney. Discharged to return in three weeks for left nephrectomy. Admitted July 20th. Separate kidney function; right 45 c.c. in 30 minutes, 20 per cent.; left 17 c.c., 1.5 per cent. Pyelograms left dilated pelvis, calices destroyed. Operated July 21st. Left nephrectomy, small degenerated and cystic kidney with small stone imbedded in large cheesy mass obstructing ureter. Satisfactory recovery. Patient visited in hospital ten days ago, states she is feeling fine except for some rheumatic pains in back and shoulders.

No. 4801. Miss E. B., age 22. December 20, 1920. Complicating disease: Chronic tonsillitis. Admitted with diagnosis of chronic recurrent appendicitis, which diagnosis was concurred in as the only active disease until catheterized urine was found loaded with pus and bacteria. Referred for cystoscopy; bladder mucous membrane, pale; urine quite cloudy—subacute cystitis. Ureteral openings negative. Each ureter catheterized easily. Specimen to laboratory. Right shows abundant pus cells and few bacteria. Left comparatively negative. Blood: white blood cells 11,400. P. 70 per cent.; S. 19 per cent.; L. 8 per cent.; E. 2 per cent. X-ray examination not made. After four pelvic lavages and injections with $AgNO_3$ solution, there remains considerable pus on right side. Still has some shifting pains in right side; left negative.

Appendectomy January 10th. Post-cecum appendix fixed by adhesions and rigid over distal third. Cryptic adherent tonsils containing some cheesy material were removed on January 20th. Discharged February 12th, convalescent. February 27th, 2 a. m., patient suddenly developed nausea and vomiting followed by intense pain in right lower chest or right upper flank. Doctor was called and gave hypodermic. Pain severe, temperature rising sharply, and patient looked acutely ill. Slight bladder disturbance and mother says urine is high odor.

F. H. S., EXAM. on consultation. Patient acutely ill; any movement very painful; vomits frequently; eyes sunken; no cyanosis,

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dyspnea nor jaundice. Face not flushed, no respiratory hurry, and no cough. Skin hot and moist. Pulse regular, 120; blood pressure not taken. Temperature 103 F. Chest negative for pneumonia or pleurisy. Abdomen slightly distended, quite tender over right kidney region and mass is felt.

Urine: Light amber color, diffuse cloud, albumen a trace. Microscopic, not centrifuged, probably 50 pus cells to low field, numerous bacteria, no r.b.c. or casts.

Blood: White blood cells 34,400 per cm.m.; Dif: P. 85.5 per cent.; S. 10 per cent.; L. 4.5 per cent.; E. 0 per cent. IMPRESSION: Obstruction of upper right urinary tract with sepsis. Advised to enter hospital. March 1, 1921, patient admitted to hospital. X-ray examination shows stone (size of small chinquapin) in pelvic portion of right ureter. Left negative. Cystoscopy: Right ureteral opening gaping, inflamed surrounding mucous membrane. No. 6 F. catheter passed easily, apparently all the way to pelvis, did not feel touch of stone; very little urine collected. IMPRESSION: No hydronephrosis. Kidney injected with $AgNO_3$ solution. Laboratory reports numerous pus and r.b.c. and motile bacteria. Patient showed some improvement next few days in temperature, pulse, etc.

March 12th, roentgenological examination shows no change in position of stone. On the 14th, cystoscoped. Catheter passed to stone in pelvis; unable to get by this point. Only two or three drops of clear looking fluid obtained. Injected with $AgNO_3$ solution. IMPRESSION: Complete obstruction with suppression of urine on that side. March 23d, temperature normal for three days. March 24th, pyelotomy, right, stone size small chinquapin removed from pelvic portion of ureter which was causing obstruction. Kidney showed evidence of swelling and inflammation. Satisfactory recovery from operation. Discharged April 18th.

The chief points to bear in mind are: that the history to begin with may be misleading in any abdominal condition; the physical examination, very important to be sure, may not be altogether satisfactory, especially where there is extreme tenderness and the muscles of the abdominal wall are tense; the urinalysis of a specimen obtained from the bladder does not aid, ordinarily, in differentiating diseases of the renal tract (excluding conditions that are usually classified as purely medical).

Our experiences along with the experiences of others have taught us the lesson that, with the most careful use of the methods that are available by which to locate the pathology, to analyze its character, and to outline its best form of treatment, in a large percentage of abdominal cases roentgenological as well as urological methods of diagnosis are indispensable. These, to obtain the maximum information in the order of their simplicity and freedom from annoyance to the patient, are: X-ray examination; cystoscopy and catheterization of the ureters with their various accessory methods of investigation, such as separate functional test of the kidneys, the use of the wax tip, wax bulb and other instruments for locating and treating an obstruction or foreign body; also, the use of the X-ray catheter and shadowgraph materials combined with pyelography.

A positive roentgenogram is of great value in any case. A negative X-ray examination alone, in my opinion, is liable to be misleading in many instances if we depend upon the unassisted roentgenogram to decide whether the symptoms are due to a lesion of the urinary tract, as it is estimated that from 15 to 30 per cent. of ureteral stones do not show in roentgenogram, either because of their composition or location, or both; or they may fail to show because of some faulty technique in making the examination.

Cystoscopy, alone, may or may not be helpful, as the only cystoscopic picture diagnostic of ureteral stone is to see the stone partially extruding from the meatus, or in the vesicle portion of the ureter just within the distended open orifice. Therefore, we must admit that cystoscopy *per se* is of little value in making a diagnosis of ureteral disease, and of no aid whatever in disease of the kidney. We must still go further by catheterization of the ureter, putting to use its various accessory methods of investigation which may positively indicate further X-ray examination, such as pyelography or roentgenography with retained shadowgraph catheter or sound.

The present status of the roentgenologist or urologist which tends to place him aloof in his specialty and separates him from general abdominal diagnosis is unfortunate. He should be closely associated with the internist and

surgeon and they should be similarly associated with him. The ideal status would be to have the roentgenologist, urologist and internist to work as a unit in every case with abdominal pain which is not definitely identified by general physical examination.

SOME OBSERVATIONS ON THREE THOUSAND CASES OF VACCINATION IN THE PAST YEAR.*

By CLAUDE MOORE, M. D., Roanoke, Va.

It has been my good fortune and opportunity to vaccinate some 3,000 persons in the past year in the city of Roanoke; to be exact, 2,671 school children and about 300 other citizens. In doing this number one naturally learns considerable, but also unlearns a number of previous ideas. In this short paper it would not be opportune to discuss the history of vaccination, nor any of the arguments for or against its use, but it would be interesting for you to know the large number of articles that are being published in our lay magazines, particularly physical culture ones, against vaccination, possibly due to the non-serious manner and method that the profession has assumed.

In vaccinating, one must remember that the amount of immunity must not be judged by the size of the vaccination pustule nor scar. One of two methods, as recommended by the U. S. Public Health Service, is advisable. All procedures must be under strictly aseptic conditions, with especial care to use some volatile antiseptic to cleanse the skin. To get a good take and yet not a large one, after the arm has been scrubbed with alcohol gauze, a drop of the virus is put on the spot, and three or four scratches about one quarter of an inch long should be made through the virus and parallel to each other. The scratches with a sharp needle should not be deep enough to draw blood, else the virus will be washed out of the groove made with the needle. Cross scratching and scarification should not be done for the same reason. Too deep a scratch will act like a well and flood the virus out with blood. A light scratch can be easier made if the skin is held taut across the arm with the other hand.

A better method is not to scratch the skin at all, but use the needle hypodermically. Go through the virus at an angle almost parallel to the skin, very superficially, giving the needle a twisting motion, but not deep enough to draw blood. All punctures should be made in a circular area a quarter of an inch in diameter. Most important of all, do not put any dressing over the area. Vaccination seems to the physician such a small thing to do for a fee that he does more harm than good. If a dressing is applied, sweat and other secretions of the skin get under the bandage, excoriate and macerate the arm, and increase secondary infection. From my observation, 90 per cent. of the vaccinations done in physician's offices have a bandage put around the arm. Customary bathing and washing should be continued after the first twelve hours, but care should be taken not to break the vesicle, soften the crust, nor damage it so that the pus will run. If at the time of vaccination the arm is allowed to dry, the virus with the lymph will form a glazed dressing over the scratch, or puncture, and any danger of infection is practically negligible.

The principal reason why such a small number of "takes" result in the casual vaccinations of physicians is the carelessness of obtaining the virus. In examining the stock in several drug stores, I found two that were out of date. Few physicians are particular about using it immediately after taking it off ice, and vaccinate with it on successive days, after carrying it in their satchels or pockets, and expect results. Of all the vaccinations that I have seen done by physicians in the past year, I believe that over 40 per cent. have not taken. In one of my schools checked up, where 240 were vaccinated, only 12 did not take, a failure of 5 per cent., where the correct method was used. Of course, 240 cases are not many from which to form a definite conclusion, but of the 3,000 done, the percentage of failures would not vary far from the above figures.

In discussing the indications for vaccination, there is practically no age or condition when it should not be done, if the person has been exposed. If he has an old vaccination scar that will protect him against smallpox, a second take is not possible, and, if it is sufficient, we do not know it until a re-vaccination has failed. All persons exposed to smallpox should be vaccinated immediately. The incubation period of vaccination is so much shorter than smallpox that the former will take before the

*Read at the meeting of the Southwestern Virginia Medical Society in Pulaski, May 11 and 12, 1921.

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latter develops, provided the inoculation of both was approximately at the same time. Only this spring I saw a family where the father developed smallpox with a definite rash. Immediately, the mother and nine children were vaccinated and all except the oldest had nice "takes." About ten days later he had a definite case of smallpox, and, on close questioning, I found that immediately following vaccination he had scrubbed his arm with soap and water to prevent a "take," for fear his arm would get sore and he would be longer away from work. None of the remainder of the family became ill.

In my opinion, there are only two classes in whom vaccination is contra-indicated: first, those who have had well developed cases of smallpox; second, those who have some kind of skin lesion, in which the virus may get spread, and thereby cause very large or multiple vaccinations. Even the latter is no contra-indication when the person has been in direct exposure to smallpox. Vaccination should be done at six months of age and repeated at six years, with additional vaccinations whenever there is exposure.

In the last year, I have been impressed with the difference in reaction between children and adults. Many of the former do not lose a day at school, their arms seldom get more than moderately sore, nor the ulcers over half an inch in diameter. The constitutional reaction is less than in grown-ups. If vaccination is continued in the future, it is only a question of time until such a natural immunity against smallpox is developed from generation to generation by inheritance, that successful vaccination will be a matter of record rather than among the present day facts.

309 *South Jefferson Street.*

A BRIEF OUTLINE OF SOME EYE CONDITIONS IN CONNECTION WITH GENERAL DISEASES.*

By E. L. SUTHERLAND, M. D., Roanoke, Va.

In selecting the title for this paper, the writer had in mind the relation of interest that exists, or should exist, between the practitioner of general medicine and the doctor limiting his field to the consideration of those troubles that, directly and indirectly, have to do with the eye. To this end, he has chosen from the vast number of general diseases that may affect the normal state of the eye, and whose presence in the human system may be suggested or made plain by certain conditions of that organ, a few of the more strikingly important to both specialist and general physician. Originality is not claimed; on the contrary, due acknowledgment is made for opinion and quoted experience of various authors.

*Read at meeting of Southwestern Virginia Medical Society in Pulaski, May 11 and 12, 1921.

The connection between eye disease and general pathological conditions is so far-reaching that more than a limited consideration is impossible here. The following classification, with one example from each class, therefore, suggests itself and is presented in the hope of mutual help and interest:

1. Diseases of the Nervous System.....Tabes Dorsalis.
2. Infectious Diseases...Smallpox.
3. Poisons .....Alcohol.
4. Diseases of Glands with Internal Secretion .....Exophthalmic Goitre.
5. Diseases of the Circulation .....Arteriosclerosis.
6. Diseases of the Respiratory Tract...Tonsils.
7. Diseases of the Digestive Tract.....Teeth.
8. Diseases of the Kidney .....Nephritis.
9. Diseases of Metabolism .....Diabetes.

1. Tabes Dorsalis. In this disease the pupil, the ocular muscles, and the optic nerve are all affected. Certain changes in the pupils may be regarded as among the earliest symptoms, appearing even before the shooting pains, occurring in probably 90 per cent. of cases and sometimes antedating by years any other evidence of tabes. These changes involve gradual loss of light reflex, the reaction becoming first sluggish, then markedly slow, finally complete; usually bilateral but occasionally monolateral, in which case it is of equal diagnostic value. There may be inequality in the reaction of the two pupils or distortion in shape of one or both. The Westphal-Piltz reaction, in which pupils narrow on sudden closing of lids and dilate when lids

are opened, is often observed, but this is also associated with other pupil disorders. Consensual reflex is equally affected. Both it and sensory reflex are lost early in or preliminary to tabes.

There is decided contraction of pupils on convergence, this being pronounced even in myopic eyes. Narrowing on convergence, with absence of light reflex—the Argyll-Robertson pupil—is strongly suggestive of tabes, since this phenomenon occurs in only two other diseases, paresis and syphilis, but always it may be found in the first stages of tabes.

Many cases of this disease are forecast by paralysis of the external eye muscles, this condition appearing before any other symptom. However, it may become manifest at any other time, the paralysis being transient, or of a few days' duration in the early stages, but, if of late development, it is apt to be permanent.

Ptosis with midriasis and absence of light reflex on one side, the other eye remaining normal, may occur, but this is not usual. Tabetic paralysis constitutes about 20 per cent. of ocular muscle paralyses, the origin probably being nuclear. The third nerve is oftenest affected, though the fourth and sixth also share in the derangement. The optic nerve is early involved in the course of tabes, usually bilaterally slow in progression, gradually continuing to complete blindness. On fundus examination, the nerve head is in the beginning found to be grayish, later grayish white, finally white. The changes occur first on the temporal side, but gradually extend over the whole disc. The field of vision is affected as the trouble spreads, central vision being lost first with peripheral contraction, the color field for green and red preceding loss for other colors. In some instances central vision is retained as in glaucoma while there is concentric contraction, or there may be central scotoma enlarging to include the blind spot and becoming absolute. If there is a tabetic lesion in the chiasm there will be bitemporal hemianopsia. This may, however, be also an evidence of cerebral syphilis.

2. Smallpox. Smallpox being every year locally epidemic in Virginia, especially in the Southwest, it seems appropriate that we might well emphasize the care of the eyes in this malady. It is stated that, before vaccination was generally introduced, fully 35 per cent. of all blind lost their sight from smallpox. The percentage, while greatly reduced, is not negligible today. Not only are the conjunctiva, the lids and the lachrymal apparatus involved in the processes, but the cornea, through secondary infection, as well. Corneal abscess and choroiditis, retinitis and even optic atrophy may occur, as well as gangrene of the lids. Erysipelas is another sequel in secondary infection. All these usually occur in severe cases of the disease with low bodily condition. The necessity for prevention of these sequelae by proper prophylaxis in expectant treatment of the eyes during an attack of smallpox is obvious.

3. Alcohol. The eye is more frequently affected by alcohol than by any other poison. Formerly ethyl alcohol poisoning was oftener met with; recently, the violent methyl alcohol poisoning is common. The former is due to habitual use of brandy, whiskey or other spirits of similar potency, wines and beer seemingly never being responsible for toxic amblyopia. The symptoms are gradual visual disturbances, the trouble being progressive, but very slowly so, often extending over months and years with occasional remissions and rarely going on to complete blindness. It seldom occurs under 35 years, never under 20. Cessation of the cause results in steady improvement with final recovery if amblyopia is not too far advanced. Fundus examination here shows partial atrophy of temporal side of disc, the nasal half pale but not atrophic. In some few recent cases, the whole disc will be found hyperemic. Visual field changes are typical, the periphery being unaffected while a central relative scotoma is always present and the condition always bilateral. The scotoma is oval, extending toward the temporal side. On the other hand, methyl alcohol causes sudden and complete loss of sight. There may be slight improvement after a few days, but this is only temporary and rapid return of blindness occurs. Pupils are dilated, immobile, and movements of eyeball are painful. At first, the ophthalmoscope shows an acute neuritis; later, nerve atrophy. In mild cases, the prognosis may be tentatively hopeful, but is nearly always bad. Most cases go to permanent blindness if the poisoning has been severe.

4. Exophthalmic Goitre. Given tachy-

cardia, struma and exophthalmos, one may be reasonably sure of Basedow's disease.

The exophthalmos is ordinarily bilateral, but now and then one-sided, in which case it is usually the left; varies in grade and at times. The eye can easily be pressed back into the orbit. Pressure on facial veins will cause eyes to protrude further. Eyes project straight forward, motility not restricted. Widening of palpebral fissure (Dalrymple's sign) is due to retraction of the lids and not to protrusion of the eye ball; not equally present in both eyes.

Graefe's symptom is a lagging behind of upper lid on looking down and a relatively more rapid movement of upper lid than eye on looking up. This disturbance of association movement is due to increased tonus of levator palpebrae muscle. Lessening of reflex closure of lids, or Stellwag's sign, is an interesting symptom in this disease, the act taking place only every few minutes in contradistinction to the normal 8 or 10 closures to the minute. In Basedow's disease, convergence is insufficient—Moebius' symptom. These symptoms, in connection with the rapid heart and the struma, make a picture typical of exophthalmic goitre. In addition, there may be various corneal lesions from exposure, toxic action, infection and necrosis.

5. Arteriosclerosis. In arteriosclerosis, the vessels of the eye share in the general condition, as a rule, though some authorities report many cases of the disease in which the vessels of retina, choroid, and iris remained apparently unaffected. But in every case in which the large cerebral arteries are distinctly involved, the retinal vessels especially show unquestionable changes, and the probability is that even mild involvement gives correspondingly slight evidences of the disease in the retinal arteries, such as moderate tortuousness, change in calibre and increased light reflex. In well developed sclerosis, the ophthalmoscopic picture is about as follows: The arteries are twisted, very much narrowed, with occasional areas of dilation, the central light streak quite narrow and bright, with a lighter than normal appearance over entire width of artery. The veins are engorged, indented where crossed by arteries and often crowded to one side, the crossing artery losing its translucency. Oedema of the retina, due to slow venous flow, may be easily marked, the red fundus reflex being entirely lost in a grayish haze. In some instances, hemorrhagic spots may be seen along line of vessels. The significance of the "silver wire" arteries, with their corkscrew-like twisting, irregularity of calibre and general diminution of size, and the full veins, flattened where arteries cross, with peripheral dilation, is apparent, since they are a part of the picture of cerebral vessel hardening. Choroidal vessels are undoubtedly affected, but not being end arteries they do not indicate condition of cerebral arteries. A mild inflammatory state of the iris is comparatively common, being accompanied by tortuous veins. In more severe cases, these conditions are intensified to the point where minute hemorrhages into the iris tissue take place. When brain vessels are involved, lesions of the optic tracts may occur with central visual disturbance.

6. Teeth. From diseased teeth may come such a long train of disorders, that stress should be laid upon advice from every physician to every patient as to the far-reaching consequences that neglect of the teeth may entail. And the eyes are no more exempt from such menace than are any other organs. There is hardly a day that does not bring to light some instance of this truth, as any eye man can testify. For example: A patient with red, swollen lids, chemosed conjunctiva, eyeball protruding, its movements limited, and all other signs of cellulitis going on to abscess, will be found to have an infectious process at the root of a tooth, with an extended superior maxillary periostitis reaching the orbit. Pus forming here may flow around the eyeball and escape through the palpebral fissure; or the inside of the eye may become involved in the infection with a varying degree of destruction; or the whole eye may be affected, panophthalmitis resulting; or the blood vessels may carry the infection from tooth to orbit or to any of the sinuses, resulting in thrombosis of one or both central vessels, with rapid blindness following. If not this acute trouble, the ocular diseases arising from chronic poisoning in root infections and pyorrhea are many, as either can cause inflammatory condition of any part of the eye.

Perhaps all cases of so-called rheumatic irido-cyclitis may be traced to diseased teeth or tonsils, as may the vast preponderance of

neuralgias of the eye and the orbital region. Have all cases examined for pyorrhea and X-ray used for information as to root infection. Bear in mind the fact that superficially teeth may appear O. K., there may be no soreness, swelling of gums, nor any other symptoms, and still infection may be present. The cleaning up of all foci of infection cannot be too strongly insisted upon.

7. Tonsils. What has been said of the teeth may well apply to the tonsils also, though perhaps in somewhat lesser degree. The diagnosis of diseased tonsils is not always simple, especially in the submerged variety, as the foci of infection are hidden, becoming apparent only after the tonsil has been removed. The most innocent appearing tonsil frequently harbors a nasty pus pocket from which is drawn infection deleterious to the whole body economy, while the large, lobulated, unhealthy looking organ, from which pus may be easily expressed, causes less trouble because of drainage. Care should be taken before excluding the tonsil as causative agent in cases of bulbar conjunctivitis which persists, episcleritis, optic neuritis, paralysis of ocular muscles and other conditions. Cases are on record of development of acute retro-bulbar neuritis after tonsillitis, and the same sequelae in central vessels may arise from tonsils as from teeth.

When tonsils are involved, nothing short of radical treatment has any value.

8. Nephritis. Not long ago, a man, aged 52, visited the writer's office, stating that he had for the past few weeks been troubled with wavering, blurred vision and that he thought his glasses needed changing. His history elicited the fact that for six months he had had "indigestion," slight shortness of breath, headaches and inability to "see things long at a time," as he expressed it. The objects in line of vision would be seen plainly for a moment, then blur and fade away. He stated upon question that his family doctor had examined his urine a few days previously and found the kidneys all right.

Fundus examination of this patient showed marked venous congestion, the disc sharing with the retina in a general hyperemia; arteries narrow, only faintly visible, with dim white lines; retina hazy with dull red color. There were a few flame-shaped hemorrhagic spots near which were white areas. This man was referred to an internist, who reported casts and gave a diagnosis of well advanced nephritis. This case is mentioned to bring out the signal importance of fundus examination in cases presenting such symptoms. In nephritis, the eye is affected in several ways. Oedema of the lids is a frequent feature, being present for a few hours or days at a time, then disappearing for a period to return later. The conjunctiva is not affected, though subconjunctival hemorrhages sometimes occur. Retinitis is, of course, the most important condition. Its significance lies in the fact that it is often the earliest manifestation of activity in a disease previously latent. In those insidious cases associated with contracted kidney, the only general symptoms digestive disturbance and headache, with plentiful urine of low specific gravity, the sufferer may consult an oculist first on account of visual derangements, in which event the diagnosis of nephritis may be made by the fundus picture as above described.

In the later stages there are increased hyperemia and evidences of fatty degeneration of retinal tissue, appearing as white spots, sometimes large, and surrounded by small white or yellowish dots. Occasional small hemorrhages may be seen along the course of the vessels.

Around the macula may be seen spots that look like spattered white paint, arranged oftimes in rows to form a star-shaped figure. Advanced typical cases present blurred, hazy disc, tortuous veins, narrow arteries with faint light streaks, flame-shaped hemorrhages and a stellate white figure at the macula.

9. Diabetes. The pathological influence of this disease on the eye is marked. Among the most common and important are changes in refraction. Hypermetropia may rather suddenly and quite steadily increase, while, on the other hand, there may be rapid onset of myopia. When this occurs in those past middle age, diabetes is very likely present. The change is probably due to increased refraction index of lens, supposedly caused by the presence of sugar. A still more frequent occurrence is a contraction of the range of accommodation, occurring in all grades of the disease. Frequent change of reading glasses is necessitated thereby. If the disease responds to treatment, this inability to accommodate rapidly disappears. Iritis is frequent,

usually mild, though sometimes it may be severe, with fibrinous exudate and hypopyon. Cataract is common in diabetes of all ages. In the old, the opacity generally begins at the nucleus; in younger persons under the capsule and usually bilateral, presenting at first a bluish cast, the deeper parts remaining clear but later also becoming opaque.

Operation for these cataracts offers as good prospect for successful results as in non-diabetic cases, though it is said iritis more often follows. The fundus changes are striking and may be said to be typical of the disease. The disc remains normal and the retina presents no inflammatory lesion. There are seen, however, groups of small glistening white spots chiefly around the nerve head, which may take the form of twisted streaks, half rings or irregular figures, but never the star shape of the figure in albuminuric retinitis. There may be many punctate hemorrhages, though the vessels themselves show no change; or large hemorrhages into the vitreous, resulting in opacities, with connective tissue formation later, and development of new blood vessels in the vitreous. In long, protracted cases, where general health has been undermined, retro-bulbar neuritis may occur from toxicity. Ocular paralysis may also be an accompanying feature. Therefore, diplopia should always suggest urinary examination.

THE NURSING SITUATION IN VIRGINIA, AND THE NECESSITY FOR REVISION OF THE TRAINING COURSE, FROM THE VIEWPOINT OF THE PHYSICIAN.*

By J. ALLISON HODGES, M. D., F. A. C. P., Richmond, Va.

The present lack of an adequate number of nurses in Virginia brings us face to face with an almost tragic reality, and, from accounts received, the conditions which prevail in this State are the same that obtain generally all over our country. The problem is a serious and vital one, and interests alike the public and the professions.

The nurse has now become even more of a necessity than ever before, due to the changed economic and sociological conditions resulting from the recent World War, and, since this decrease in numbers has occurred despite the great increase in population during the same period, and as it seems likely that State medicine in one form or another is coming, and that to meet this emergency of lack of both physicians and nurses, the U. S. Public Health Service and the city departments of health, throughout the country, will be widely expanded, and in doing this will still further utilize all present medical and nursing facilities available, it is urgently necessary that all possible means be taken to protect and guard the public welfare at the present time, and, especially, to increase the number of nurses for the assistance of the general practitioners of medicine in this State.

The tension existing in professional circles because of this shortage, especially of graduate-private-duty and hospital-pupil nurses, is now almost as acute as during the war, and is not improving, as had been thought probable.

This shortage of nurses is in part comparable to a like shortage of doctors in the entire country, but not directly due to a decrease in the number of training schools for nurses, as has been the case in the decrease of medical schools. Unquestionably, the decrease in the number of medical schools within the past fifteen years from 160 to 82 in number, and the consequent decrease of medical students from 28,000 to approximately 12,000, is in part the cause of the shortage of physicians, but,

In the case of the nursing profession, this is not true, for there has been, on the other hand, a large increase in the number of hospitals throughout the country, especially private and community hospitals, and apparently there should have been also, an increase in the number of nurses graduated annually. This increase in the number of hospitals, however, has been within a comparatively recent period, and sufficient time has not yet elapsed to insure an increase in graduate nurses, and many of the new hospitals and also old ones, which have made additions, have called upon the graduate nurses to fill the positions ordinarily occupied by pupil nurses, of which there has not been a sufficient number to supply the vacancies. Taken as a whole, consequently, the nursing situation has not improved, but in this State is becoming more acute, and causing physicians

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and those interested in public welfare consequent anxiety and uneasiness.

This growing demand for nurses is, however, a distinct compliment to their recognized ability and efficiency, and has necessitated thoughtful inquiry as to the causes of the present shortage of nurses, and the best possible remedy to meet it. When it is remembered that training schools for nurses have been established but forty-eight years in the United States, and have graduated 150,000 nurses, the success of their work is as remarkable as it is commendable, and it is evident that the present shortage is due to a variety of causes produced by conditions, both within and without the limitations of the professions of medicine and nursing.

The main causes of shortage of nurses are:

1. The specialization and selections of the graduate nurse, as follows:

a. By limiting nursing *to* certain selected diseases, such as obstetrical cases, surgical cases, etc., and *against* T. B. cases, contagious diseases, etc.

b. By limiting work to certain specialties, such as anaesthetics, dietetics, office nurses, dentists' and physicians' assistants, etc.

c. By limiting work to institutions, such as hospitals, in official positions; boarding and public schools, as institutional nurses; factories, as industrial nurses; dispensaries, as maternity nurses, and all forms of social service work, etc.

d. By limiting work to Public Health Service of various kinds, to the army and navy, to the Red Cross and other branches of service, and

e. By limitation of service because of marriage and of cessation of active work, after an average period of eight years of public service.

2. The limitation of the nursing sphere, as follows:

a. By limiting work only to hospital-private cases.

b. By selection of only day or night work.

c. By doing only city or country work.

d. By working only in certain homes, providing certain comforts.

e. By working only limited hours, on private duty, and

f. By remaining in the city in which the nurse graduates.

3. The length of time required to secure a diploma, exactly the same number of calendar months being now required for graduation of both doctors and nurses.

4. The constant development and extension of the courses, thus making the scholastic requirements unduly excessive in comparison with the practical methods taught.

5. The contrast with other professions and vocations which provide as much remuneration, with less time in preparation.

6. Financial returns quicker from other vocations which require less arduous service for preparation.

7. The war-demands, which gave the opportunity to many absolutely untrained nurses, to take up the work, and to continue it, most of them with no more training than could be obtained, simply, by walking through the wards of a hospital.

8. A decline in the true professional and humanitarian spirit.

9. Restlessness and lack of interest of some graduate nurses, and temporary removal of others from the State.

10. Lack of hospital comforts and recreational diversions for pupil-nurses, while in training, and lack of proper comforts and treatment in some private homes.

11. Lack of individual interest and of continuous and co-ordinated courses of study by the most competent instructors on some of the hospital staffs.

12. Possible inadequate, or unjust basis of remuneration of pupil-nurses, for services rendered as private-duty hospital nurses.

13. Existing sociological and economic conditions, dependent in cities upon overcrowding of population and life in apartment houses; and in the country, upon insufficiency in number of domestic assistants, and

14. The constantly decreasing number of entrants, as well as graduates, in both the allied professions of medicine and nursing, which has had the natural tendency to foster the spirit of individualism, and to cause undue specializations and the resultant feeling of a professional power, which has furnished some excuse for its abuse, regrettable as this is, for while "it is well to have a giant's strength, 'tis tyrannous to use it."

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The above-named causes, and probably others, have produced the following results:

1. A scarcity of private-duty graduate nurses for the use of the general public.

2. An increase of undergraduates and correspondence school graduates.

3. An increased expense to certain semi-invalid patients in hospitals, because most of the hospitals have not had sufficient nurses to perform the usual floor duties.

4. The necessity of extra nurses on other cases, because of these conditions.

5. Probably depreciation of standards, because of the exigencies of the present times.

6. A possible commercialization of the profession by some nurses, and

7. The danger of radicalism from those who have felt the results of these conditions, and may wish to institute legislative action which might endanger the present legal status of the nursing profession, as well as that of medicine.

GENERAL BASIS OF SOLUTION OF THE PROBLEM.

It is entirely evident that many of the causes, as well as some of these results, cannot be obviated nor prevented, nor are all of them to be considered derelictions, in whole, of all of the graduates of either medicine or nursing, for, of course each individual has every legal right to specialize and select individual work, and, as to the civil responsibilities and consequences for this, each must be personally the judge, and under any circumstance assume the responsibility, even if at times it be uncomfortably onerous or deleterious to the majority of all concerned. In other words, professional ethics and the interests of the general public should always be considered, as well as the individual preference of the practitioner, be it of medicine or nursing. The individual act, of course, does not always represent the practice of the majority of any profession, though individual action may sometimes be practically very harmful to the profession represented.

In attempting to reach a practical basis for solution of this question, it was decided to interview by letter a number of physicians, and also to consult with the presidents of the different nursing organizations in the State, and to this end a letter was sent to the presidents of sixty local medical societies, and, as it was thought that their personal opinions would be representative of the profession of the section in which they lived, they were requested to give their opinion as to the course of training for nurses on the two following points:

1. The wisdom and apparent necessity of reducing the period of nursing education to a two-year curriculum, for applicants with a high school diploma.

And if this could not be effected,

2. The wisdom of establishing, through some State agency or otherwise, a school for giving an intensive but limited course in practical nursing, with no diploma, but a certificate as trained or licensed attendant.

In reply to this questionnaire, sent to sixty physicians, forty-two answers were received and a summary of the opinions is as follows:

1. Two physicians disapproved of both alternatives.

2. Forty approved of some general method of reducing the course of training in some way to meet the present necessities.

3. Thirty-four recommended a specific reduction of the three-year term to a two-year curriculum, a small proportion advocating an ordinary grammar school education as a preliminary preparation, and the rest preferring a high school diploma as a preliminary educational requirement.

4. Thirty-nine approved, and the great majority urged the establishment of the course for trained or licensed attendants.

Other suggestions were made as follows:

1. That all nurses who make a combined average of more than 75 per cent. in Class "A" hospitals, be graduated at the end of two years, and that those who fail to make this grade be given an opportunity to graduate at the end of two and a half years, and that an official commissioner be appointed to grade all hospitals maintaining training schools.

2. That the nurses' legal status for graduation be similar to that of druggists, and registered assistant druggists, with lower salary for the latter.

3. The reduction of the term of training for a high school graduate to two and a half years, and the establishment of an intensive short course in practical nursing for those who have not this educational qualification, the two courses not to be given in the same hospital.

4. The initiation of a two-year curriculum for graduate nurses, and also the establishment

of some central organization, State or otherwise, for intensive training, but both classes of nurses to have distinct uniforms, and a difference in salary.

Personal Recommendations.

The future training schools for nurses must be made so attractive and so satisfying that the high school girls who have been taught the value and vision of personal service will be imbued with the idea of nursing as a career, and, if this is done, the handicap to both private and public health nursing, because of lack of nurses, will be removed.

If a nurse is educated before she comes into a training school, she should receive a credit for this, and surely, in the future, there will be for such nurses an academic reward, by allowing them to earn both their combined nurse and specialist degrees in a shorter period of time.

The past education of the nurse in training schools, like that of the doctor, has had a great deal of padding in it, and in the future rearranged course the useless must be eliminated and all schools put on an educational basis, rather than on the old idea of apprenticeship in the hospital.

Sir James MacKenzie, the great medical philosopher and brilliant general practitioner, in speaking of medical education, and the same applies with equal emphasis to that of nursing, says: "It is far better to be trained to understand a few matters thoroughly than to have a superficial knowledge of a great many things."

Ideally, I would prefer to see established a central State Nurse Training School, where pupils educated in the State public school system could continue their professional courses, on terms and a combination of courses similar to those prevailing in other State institutions, such as normal colleges for teachers, etc., for the necessity for nurses is almost as great as for teachers, but I know at this time that this method is difficult of practical realization. The whole matter of nurse training now must be reduced to a practical working basis to supply a demand which is insistent and increasing, and a plan must be evolved that will *educate* first, and afterwards *train* pupil nurses in the best possible manner.

This, then, practically resolves itself into a curriculum that will be instructive, and will, in a measure, teach the pupils by clinical methods more largely than in the past, just as medical students are taught to observe, to think and to apply their knowledge. This will require special teaching facilities that can be easily provided in an adequately equipped general hospital where the pupils can observe and study personally the conditions and disease-expressions of the more common illnesses as they exist in everyday life.

This will mean the elevation of teaching standards over the old method, where a nurse's labor was put above her instruction, the nurse, consequently, becoming only a by-product of the institution.

With this reorganized method of putting foremost the nurse's training, it is believed that an enthusiasm would be evoked which would result in a large increase in the number of nurse entrants into the profession.

To obviate, then, the past faults of the present system, and to meet these new requirements, my personal recommendations, after thoroughly studying the proposition from all angles and feeling that, in order to get results that will be permanent and beneficial, we must "give and take" without lowering the standards in any way, but rather advancing them, are as follows:

1. The institution of a two-year revised and reorganized course of training for students of good moral character, and more than eighteen years of age, presenting credentials of not *less* than *two* years of high school education, or its equivalent, thus putting a premium on "preparedness," by the subtraction of the third year of the professional course, and the addition of one year, at least, to the scholastic course.

If the above is not acceptable to the representatives attending a future meeting for the discussion of this subject, then,

2. The three-year curriculum, as at present, be retained, and that there be established, also, a twelve-months' practical training course, in which the first three months shall be devoted mainly to theoretical training, and the subsequent nine months to the combined theoretical and practical work, such pupils to receive a certificate, with the title of "licensed attendants," and this course to be open to all applicants more than nineteen years of age, and of good moral character, and presenting educational credentials from a grammar school of the public school system, or its equivalent; the three months of theoretical training in the above

course to be given in such training schools connected with general hospitals in the State, as are acceptable to the State Board of Nurse Examiners, and the nine months of practical work to be given in hospitals in the State, similarly accredited and acceptable.

The revised course of training for nurses submitted, No. 1, is decidedly my personal choice, and is intended to give an opportunity to young women who will naturally take the high school courses, to round out their education by having only two years of specialized professional work to accomplish before their education is wholly completed. It is believed that this would induce a better qualified element to undertake the profession of nursing, and at the same time place the profession itself on a basis which would be competitive, and attainable without undue length of time in professional preparation. It is my opinion, also, that better nurses will be the result of this method, for I do not believe that a three-year training course is absolutely necessary for the preparation or perfection of a well qualified nurse.

The present method, of the addition of a third year, was instituted originally to give the hospital authorities an opportunity to remunerate themselves in the last year of the nurse's training, by utilizing her as a private-duty nurse to increase the income of the hospital. This method is indefensible and, in my opinion, has resulted, in the case of the average well prepared nurse, in cheating her out of one year of her life work; for, to educate nurses properly, it should not be done in training schools, on the theory of resultant financial reward, but on the theory of actually training the nurse, by teaching the pupil.

Furthermore, even in a three-year period, it is impossible to teach, or attempt to teach, the basal sciences of medicine, for even now, in studying the curricula required by different examining boards, it is seen that the courses are unequally balanced as to theory and practice, and that frequently too much stress and time are devoted to making a nurse-doctor, instead of a nurse proper.

It is unnecessary to criticise, but only to mention some of these requirements, to prove the truth of this statement: one board, for example, requires only eight periods of instruction in "diet in disease," and sixteen periods of instruction in "nursing in diseases of children (including orthopedics and infant feeding)," the latter requirement being exactly the number of periods required, for instance, in bacteriology, a most difficult scientific study, and of little importance and less value to the student nurse, while, on the other hand, twenty-four periods only are scheduled for the whole subject of the anatomy of the human body. It must be evident that such a course naturally leans too much towards theory, or abortive efforts to learn it, and not sufficiently towards the more common necessities of private nursing.

It is readily admitted that this question is a most difficult one, and that the problems have been met as successfully as possible by the examining boards, hospitals and training schools, which have labored faithfully, but there is still necessity for improvement.

I am, personally, heartily in favor of higher standards, but especially in higher standards of scholastic preparation for the work, and believe that, all things being equal, proper preparation will give a better nurse in a shorter period of training. Recently, in examining the registration of nurses in the State of New York, I was impressed with the fact that a number of the training schools, that had been previously giving a three-year course, were decreasing the length of their training courses to two years and two months, or two years and three, four and six months, and that those hospitals still maintaining a three-year course were devoting the last year mainly to therapeutic specialties and professional problems.

The statutory requirements for graduation of nurses in that State (New York) are a course of at least two years and a preliminary education of at least one year of high school, or its equivalent. The statutory requirements for a registered nurse in this State (Virginia), are graduation from at least a *two-year* course, in an approved training school, connected with a general hospital, and evidence of "sufficient preliminary education, as may be determined by the Board." Evidently, then, some changes can be made in the requirements for graduation of nurses without violence to existing statutes in this State and without reflection upon present training schools or the State Board of Nurse Examiners, provided that, after the general conference alluded to above has met, it, in its wisdom, may deem such necessary.

General Summary.

Education, as well as hospital preparation in training a nurse, are eminently desirable and necessary, but the teaching of the fifty-five practical nursing methods, such as "Care and Feeding of Infants and Children," "Surgical and Gynecological Nursing," "Fever Nursing," "Private Duty Nursing," etc., etc., and the repeated drilling in and practice of these, also, should be more strongly emphasized, and these practical methods almost alone, fused and blended into the life and training of the nurse, together with a mother-spirit which, with every sacrifice, finds its atonement and, with every service, its achievement, and will develop useful and satisfactory nurses, with the dominant quality of service as their highest badge of professional attainment.

In the solution of a matter which, like this, touches so many angles of social and professional life, naturally there will be differences of opinion. For instance, in an informal inquiry among the hospitals in Richmond, it was ascertained that the owners and managers of ten of the twelve hospitals in the city were in favor of a two-year course, while, on the other hand, a decided majority of the superintendents of these same hospitals favored a three-year curriculum.

This question, being largely professional, has, so far, been discussed mainly by the medical and nursing professions, who are naturally best acquainted with all the points involved.

The physicians contend—

1. That too much time is expended in a three-year course of training for nurses, in comparison with the average length of time that they practice their profession.

2. That too much time is devoted to the science of medicine, and not enough to the art of nursing, and that this has had a tendency to result in special graduate nurses instead of practical graduate nurses, willing to devote their time to the more ordinary cases of illness.

3. That the period of time in calendar months necessary for graduation is exactly equivalent to that now devoted by young physicians to their education; in the one case, twelve months in three years, and in the other, nine months in four years.

4. As a result of this, and other conditions named in the general consideration of this subject, pupil nurses are decreasing.

The nurses claim—

1. That at present too little time is allowed for the acquisition of the necessary knowledge to fit a nurse properly for her profession.

2. That small hospitals and hospitals not properly equipped with adequate facilities for training nurses in their training schools are the vital cause of a decrease in pupil nurses.

3. That hospital training schools which are properly equipped are now having an increase in the number of pupil nurses, it being reported that 50 per cent. of the training schools in the State now have a sufficient number of students.

It is unnecessary to give statistics to prove the present shortage of nurses, or even the approximate percentage of decrease as compared with former years, but the common and insistent report throughout the State, substantiated by the confirming voices of many sufferers, seems to be self-evident proof that this condition does exist, and is constantly increasing.

Whatever may be the causes, the fact remains that the problem confronting us is a very present and urgent one. The work of the nurse, in her sphere, is almost sacred in character and should be ennobling, for its cardinal principle, devotion to service for others, should cause humility in its rendering, and, as in the case of the single-hearted and high-minded physician in a larger sphere, should bring contentment with its performance and not ambitions out of alignment with higher purposes, and, if at times, one in the ministration of duty should forget her obligation, we should not indict the entire profession for this dereliction, but strive the more to make the servant worthier of the high ideals of professional practice.

The remedy sought, and the method adopted, should be one that will not lower the standards of nursing, but, on the contrary, one that will elevate the profession by inviting a better qualified element to enter it, and also one that will adjust and equalize the training courses with a view of better fitting the nurse to meet the actual and necessary duties of practical nursing, and of properly and successfully applying the physician's daily instructions. In this plan, the fullest justice must be accorded to the nurse, and the future interests of the patient, which are paramount, must also be conserved.

If, after a reasonable period of practice, the nurse should wish to further fit herself for some specialized work, let her, like the physician, take post-graduate courses, with this specific end in view.

There will never be sufficient nurses, in the light of conditions made evident by the economic social reaction from resultant post-war adjustments, but the profession of nursing may be made more attractive and fitted for larger usefulness, in my opinion, if there is a revision of the training school schedule of theoretical studies, discontinuing some now taught and substituting more practical branches and more clinical demonstrations, and omitting some academic and scientific requirements now obligatory; in short, the whole course should be made more practical, as well as more personal and efficient, by always having a fully competent and interested staff of instructors who will give continuous and constructive courses with special consideration to the student *per se*, and to all that directly concerns her individual interests, as pertaining to the patient, the physician and the public.

A revision and rearrangement of the nurses' training course at this time will be in line with changes and adjustments in medical schools and hospitals now taking place, and experience proves that it is better to give a student, either medical or nursing, no course whatever in the basal sciences of medicine than to give a superficial one, which always is as unsatisfying and bewildering as it may be dangerous. It must be acknowledged by all that have given it thoughtful attention, that the action of the medical profession in advancing the requirements for the education of physicians was too drastic and precipitate, and has been an error, if not a serious fatality, so far as rural communities are concerned, and it is important that all due care now be exercised in the changes proposed for the future training school courses of nurses, in order that they shall be thorough and efficient, as well as practical and profitable to all.

Personally, I am convinced of the entire practicability of a revised two-year course of training, for teaching nursing alone, and am willing to admit that a three-year course is not even long enough to teach a nurse both nursing and medicine, as some seem to deem essential, but which, to my mind, is absolutely unreasonable, undesirable and unnecessary. Many of the best nurses we now have, had only a two-year training course, and the three-year course, even now, is really only a two-year course, as far as *actual teaching* is concerned.

There will be, of course, different views as to the best methods for the continued training of nurses, in order that the greatest good to the greatest number may be accomplished, but it is hoped that the whole subject will be approached with a reasonable and dispassionate disinterestedness, especially for the public and professional welfare, for the nurse, individually, has a duty to those who call her, and we believe that in humility and in service she will answer.

As a citizen, too, she has a community obligation, and, through organization, an unusual opportunity to identify herself with the private and public interests of the people, living with them rather than on them, and with proper preparation and through the common tie of human sympathy, the ability to preserve and perpetuate the high ideals of her honored profession in the spirit of hope, and with the certainty of conquest.

The emergency is upon us; the issue must be met and solved, but not by dictation by any one person or profession, but by the co-operation of all.

107 *East Franklin Street.*

EARLY RECOGNITION OF SYPHILIS.*

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When we are confronted with the fact that 16 per cent. of the world's population are infected with syphilis, and that there are between six and ten million syphilitics in the United States; everyone should realize the urgent need of an early recognition of this dreadful malady. Equally so should a more generalized and effective treatment be studied out and standardized. As you know, syphilis is one of the most important medical diseases that the physician has to contend with, hence he should ever be on the alert for its presence: for to diagnose syphilis is often a serious matter. The diagnosis should never be treated lightly on account of its frequency, the many diseases it may imitate and complicate, and the various and sundry points of deception.

*Read before the Seaboard Medical Society, at Elizabeth City, N. C., December, 1920.

It is known that syphilis is a chronic infectious disease, affecting all branches of society; that neither age, sex, social position, nor chastity renders one immune to its attack; that we are unable to foretell its termination, for at any time during the life of an infected individual he may show its manifestations. Its symptomatology is as broad as medicine itself, no organ in the human body being exempt from its manifestations, and there being few diseases it may not simulate and modify. It lowers one's general resistance, and no infectious disease is followed by such distressing sequelae; e. g., deafness, optic atrophy, tabes, and general paresis. It is often communicated in marriages and, above all other diseases, has a more pernicious effect upon the descendants of its victims than any other hereditary disease.

Syphilis is primarily propagated only by direct contact with the specific and simple organism, notwithstanding its multiform and remarkable varied ways of revealing itself. This infection may be congenital or acquired. It is now generally accepted that a child born with syphilis was infected "in utero," and that no infected father can give his child syphilis, except by first infecting the mother. In acquired syphilis, 94 per cent. of the initial lesions will be found on the genital organs and are the result of sexual intercourse; the remaining 6 per cent. are located on some other part of the body, and are termed extragenital chancres.

The search for the real cause of syphilis went on for many years with sad and disappointing results. Not until 1905 did the protozoologist, Fritz Schaudinn, and his confrere syphilologist, Erich Hoffman, demonstrate a spirilla in a chancre. The organism was first called "spirocheta pallida," but later, from its morphologic characteristics, was changed to "treponema pallidum." Its appearance is that of a spirally wound wire, 4 to 14 m.m. in length, ¼ to ½ m.m. in width, and is recognized by the marked regularity of the spirals, its extreme motility, and lateral flexibility.

For convenience and from a clinical standpoint I shall classify syphilis as early and late syphilis. The former brings us at once to consider the chancre, or initial lesion. The true chancre is usually single, but may be multiple, and is auto-inoculable for the first ten or eleven days, which goes a long way toward proving that syphilis is at first a local disease.

The period of incubation for the chancre is generally three weeks, a usual average of twenty-five days; with variations at fifteen to forty-five days. In the beginning it is a small reddish, itchy spot, with a rapidly excoriating center. Slowly the lesion extends at its periphery, and becomes a round, well defined superficial ulcer; rather elevated than depressed, and with very regular borders. The center is usually granular and the color of raw meat, a slight sero-sanguineous exudate, and with moderate tenderness, but in most cases no pain.

Just here, if we ever expect to reach a radical cure, is the time, and only time, to make a diagnosis, in order that we may gain time, before the treponema has spread to the lymph system around the sore, and before the serologic reaction has become positive. I cannot urge upon you too seriously that the recognition of syphilis should be made at the earliest possible moment. Everyone on the genitals and elsewhere on the body should be carefully examined for the spirocheta. Especially do I cite such cases for examination as sores on the hands and fingers of trained nurses, dentists and physicians.

For this diagnosis we have several methods, chief among which are the dark field illuminator, staining the organisms in the secretions, and staining the organisms in the tissues, also the india ink method. I shall describe to you, however, the most efficient method, the dark field illumination test. This is an attachment furnished for the microscope, and is substituted for the condenser. This allows no light to pass through the field except the rays of light that outline the delicate translucent spirilla. Remember to keep the lesion clean, and do not use medicinal agents or you will destroy all organisms from the superficial surface, and your test will be negative. If the sore has been treated, then apply wet dressings of salt solution for from twelve to twenty-four hours, when you should be able to collect a satisfactory specimen.

Just here, should failure be met in diagnosis, constitutional treatment ought not to be used, in most cases, but rather should we wait for our last, and perhaps most universal laboratory test, the Wassermann complement fixation test. This test is generally not positive

until the fifth week, the first onset of the initial lesion. It must not be forgotten, however, that the Wassermann test is not infallible, and not every patient who has a negative Wassermann test is free from syphilis. Yet, its great value has been shown in early recognition of relapses, after treatment and a follow-up for cases, often showing the need for further treatment, weeks and even months before marked clinical symptoms are recognized.

This brings us now to the consideration of the early recognition of late syphilis. Here we are confronted with three important questions:

1. Is the patient a syphilitic?
2. Is the patient's disease that of syphilis?
3. Is the patient's disease complicated by syphilis?

A physician, if he would be successful, must constantly keep before him these points in his daily contact with the sick. Only the first can be answered in most cases by the laboratory, but all of them can be determined in the average, if a careful study of the "whole individual" is earnestly and conscientiously made.

I regret to be forced to admit that syphilis has been most carelessly dealt with in the past. We have not spread the vital importance of an early recognition, nor have we impressed its horrors seriously enough upon our patients. But rather has there been a tendency to make a diagnosis from the patient's complaint, or his most prominent physical signs—e. g., "Eye strain, epilepsy, floating kidney, sacro-iliac disease, gastritis, neurasthenia, hysteria, rheumatic ocular palsy, gastric neurosis, functional heart disturbance, muscular rheumatism, neuralgia, bilious attacks, vertigo, sciatica, gouty diathesis, autointoxication, focal infection or endocrin disturbance," rather than spend the time and energy in a thorough examination and study of the case, as essential to a diagnosis.

In the early diagnosis of late syphilis, where symptoms are often hidden or associated with symptoms of other maladies, you will note your clinical findings coming prominently to your aid. What is meant by a study of the "whole individual" is all we can learn from the family history, personal history, and history of present trouble, and a thorough and searching physical examination. Do not overlook the fact that latent syphilis is often found in the consort and progeny of the syphilitic. Too truly has this been brought clearly before me here recently in a husband who was found positive for syphilis after complaining of vague rheumatic pains. A further history and examination showed his wife and two children infected, yet presenting no visible or known symptoms. With such a clinical procedure plus the laboratory examination of blood, spinal fluid and roentgen findings, there should be few cases escaping recognition.

Now, let me call your attention to the hard and angry foe we must fight—an enemy more subtle and misleading than the will-o'-the-wisp, and an enemy that will rack your brain and ingenuity to combat, for it involves every field of medicine and every organ in the human body. Furthermore, syphilis is a chronic infectious disease permeating all branches of society, affecting the immediate progeny and later generations. Therefore, do I urge upon you the great need of an early recognition of syphilis and the syphilitic, for here and only here, lies success in cure, if radical cure is possible.

DIAGNOSIS OF FOCAL INFECTION.*

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The data which have been accumulated in support of the view that infectious foci give rise to symptom complexes apparently unrelated to the site of the focus, are too abundant to require additional argument to establish the hypothesis as a fact. But, like every other great discovery in medicine, when the principle has gained acceptance, it has been overworked, and applied without judgment. The etiology of a focal infection is too frequently invoked without the rigid diagnostic study essential to establish the relation of cause and effect. The result is that we are confronted with not a few disappointments in cases where more or less mutilating and injurious operations have been undertaken without that relief from symptoms that has been promised or hoped for.

There is no class of cases that demands a more thorough diagnostic study, both constructive and eliminative, before attempting to

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define the etiological factor, and to give the correct prognosis. The discovery of a single focus should not terminate the search, but all the possibilities should be investigated.

In considering the chronic sufferer from symptoms whose cause is undetermined, we have to deal with a problem whose analysis requires a broad foundation of pathological knowledge, combined with a wide experience of humanity. The anamnesis is of the highest importance in assigning the patient to the proper classification, and in developing the peculiar factors of the individual case. A history of which the facts are true, and in which the proper weight is given to the various details, builds for us a record which cannot lead us astray.

It will be found that such patients will ordinarily fall into one of two groups:

A. Those due to errors of hygiene.

B. Those due to objective lesions.

always remembering that both factors may be present in the same patient.

The history will usually decide what role is played by abnormal living, thinking and adjustment to environment, and what portion of the symptom complex is to be attributed to actual somatic disturbance and the effects of pathological tissue defects. We thus determine whether we have to deal with psychogenetic disorders or with those dependent on organic change.

Finding that our patient belongs to the group of somatic disorders, we usually find that when we have excluded the effects of trauma, neoplasms and extraneous poisons, we have to deal with the results of parasitic infection. In the further analysis, we first consider, in order of frequency, those infections of a general character, which may cause a widespread variety of symptoms, such as tuberculosis, syphilis, malaria, intestinal parasites, etc. These being excluded, we conduct a careful regional examination, giving especial attention to those structures prone to be the seat of focal infection, that is, the tonsils, teeth, accessory nasal sinuses, appendix, gall bladder, bronchial lymph nodes, prostate, uterine appendages. Clinical experience teaches us to expect in each case certain characteristics, both local and general, that are likely to be associated with each region.

Tonsils. Headache, which is frequently periodic and paroxysmal in character, sometimes diffuse, sometimes referred to the occiput; myalgic pains in the back of the neck and shoulders, with hypertonus of the muscles involved; or neuralgia of the posterior auricular nerve suggest a tonsillar origin. Examination of the throat shows margins of the crypts reddened, with or without exudate; hyperemia of the peritonsillar tissues, usually of the anterior pillars; enlargement of the cervical glands draining the tonsils. One or all of these findings indicate tonsillar infection, old or recent. In cases of doubt, the services of a throat specialist and the bacteriological study of the material obtained from the *depth* of the crypt are necessary.

Teeth. I do not believe that any honest and well informed dentist any longer maintains that a knowledge of the condition about the root apices can be obtained through visual examination of the oral cavity. The X-ray is here indispensable. The presence of extensive caries, of pyorrhea, or of any devitalized teeth leads us to suspect peri-apical infection. It must not be forgotten that active apical infection may be present about a living root. I have seen several cases of neuritis of the distribution of the brachial plexus arising from dental infection, but not frequently enough to state that there is such a predisposition.

Bronchial Adenitis. This is suggested by a paroxysmal type of coughing, with little or no expectoration, and absence of physical signs pointing to parenchymatous lung involvement. There is frequently a low grade hyperemia with or without granulations of the posterior pharyngeal wall. The clinical picture here is difficult to demonstrate. The X-ray is of great assistance, but the differentiation of the findings from those of tuberculous adenitis is not yet satisfactory. I feel sure that non-tuberculous cases of this kind are more frequent than we have realized, and that remote symptoms may arise here, as in other cases of focal infection.

Accessory Sinuses. These cases present a characteristic headache, which may be frontal, occipital, or diffuse. It frequently is present on awakening in the morning, and passes off a few hours after arising. The regional examination requires the X-ray and the services of a specialist.

The same diagnostic principles apply to the study of the structures below the diaphragm. The ready access of surgeons to this region has

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so advanced the knowledge of the pathology and symptomatology of this region that further elaboration here is unnecessary.

The subject of focal infection is of too recent development, and the knowledge bearing on it is increasing too rapidly for us to have achieved as yet a satisfactory classification based on clinical syndromes. It has appeared to me, however, that the cases do group themselves in a fashion that permits of a tentative classification, and the following is offered with a full appreciation that it is subject to correction and amplification.

I. Toxic Group. In which the findings point to toxic material circulating in the blood stream. Such may present:

a. *Albuminuria.* This finding, first regarded as indicative of the presence of Bright's disease, was later found to be an accompaniment of most acute general infections. We now realize that it is of frequent occurrence in chronic infection, and may disappear permanently, when such infection is eradicated. I have seen this happen in chronic tonsillitis, alveolar infection, gall stones and appendicitis.

b. *Acidosis.* This condition, especially as it occurs in children, should always entail a search for a focus of infection, and its removal if found. Complete cessation of the attacks ensues in some cases, and in others they diminish in frequency and intensity, and are the sooner outgrown.

c. *Hyperthyroidism.* The evidence is increasing that many, if not most, cases of this disorder are associated with infection, most frequently of the tonsils or teeth. The surgical removal of such foci is a valuable preliminary to other treatment in such cases, whether medical, surgical or with X-ray. The following observation is of interest in this connection:

Mrs. H., white female, aged 34 years, showed a slight unilateral exophthalmos and enlargement of the lateral lobe of the thyroid on the same side. There were no signs of increased metabolism. She was nervous and anxious, but this was attributed to a gloomy prognosis which had been given by another physician. The tonsils were badly infected, and removal was recommended. At operation a retro-tonsillar abscess was found on the side of the thyroid and eye involvement. Satisfactory recovery ensued, and when the patient was last seen it required careful observation to detect any asymmetry either of the eyes or thyroid. A relation of cause and effect between the peritonsillar infection and the unilateral thyroid symptoms is very strongly suggested by this case.

d. *Anemia.* The old classification of anemias into primary and secondary still persists, but the latter group is steadily growing at the expense of the former. Almost any chronic infection may cause anemia. Chronic streptococcic infection, if of sufficient duration, is invariably associated with anemia and, in some cases, this may take on such a rapid development as to assume a pernicious type. It is rare in my experience to see a case of pernicious anemia with sound teeth. The discovery in any patient of anemia other than chlorosis should furnish a presumption of chronic infection, local or general.

e. *Arteriosclerosis.* While alcohol, syphilis and lead poisoning are recognized causes of arteriosclerosis, they can be incriminated in only a relatively small proportion of the cases that occur. Medical literature shows an increasing tendency to connect this condition with infectious diseases, especially with those of the chronic type.

II. Arthritic Group. Gonorrheal arthritis was long ago recognized as an example of a metastatic condition arising from a focal infection. We have been very slow in recognizing the similar method of the production of other types of arthritis, both acute and chronic. Especially has arthritis deformans been productive of a voluminous literature, which has contributed little but clinical descriptions and palliative therapy. We now accept the hypothesis that any non-traumatic arthritis is the result of infection, either due to the implantation of organisms in the joint, or to the irritative action of toxic material which has migrated thither from a focus of infection elsewhere.

III. Gastro-Intestinal Group. Here the patient's first complaint is referred to some disorder of digestion. It is the most difficult group in which to arrive at a correct opinion, because of the great variety of conditions, both local and general, which may give a symptom-complex that is superficially the same. What is commonly called the pyloric complex occurs in more or less modified form in so many conditions, that the mere statement by the patient that he has pain after eating, gas and constipation offers little of diagnostic value. Such

symptoms occur in gastric and duodenal ulcer, gall stones, cholecystitis, appendicitis, irritative conditions of the colon and rectum, deforming adhesions and anomalies that interfere with the peristaltic rhythm. They may also be found in pulmonary lesions, especially those in proximity to the diaphragm and the trunks of the pneumogastric nerves; in chronic infections of the teeth or tonsils; in chronic malaria; in purely psychogenetic disorders. The routine X-ray examination of the lungs of cases referred for study of the gastro-intestinal tract has revealed a surprisingly large percentage of cases with pulmonary tuberculosis, and without gastro-intestinal defect. I have had one case operated on for duodenal ulcer, after consultation with a prominent surgeon, in whom the operative findings were negative, and who afterward obtained relief of his digestive symptoms, when his malarial infection was properly treated with quinine. We do not, I think, properly realize that functional disorders of the digestive tract, producing symptoms referred thereto, are to be expected in any disorder which may produce abnormal stimuli in the distribution of the pneumogastric or spinal sympathetic nerves. A minute analysis of the history will, however, often point to differentiating factors. Organic lesions in the pyloric region usually furnish a regularity and persistence of symptoms not present when such symptoms are due to extrinsic causes. The thorough objective examination, including the use of the laboratory and X-ray, will usually enable us to form a correct opinion.

IV. Sympathetic Group. In which the presenting symptoms indicate that the toxic agent is exerting its influence upon the vegetative nervous system. Such patients have usually been labeled as neurasthenics. They describe themselves as being nervous, irritable, getting easily tired, subject to palpitations, hot flushes, chilly sensations, sweating readily, or having cold extremities. They have a low blood pressure: are sometimes emotional, sometimes torpid. This group usually overlaps one or more of the others, most frequently the gastro-intestinal. They require a very careful anamnesis with a very careful interpretation to separate them from the purely psycho-neurotic cases. My own experience has led me to expect that when such symptoms have developed at or about a definite time in a person previously normal in body and mind, the cause will be found to be organic disease.

V. Dermatological Group. The relations of focal infection to skin lesions requires much further study. My experience leads me to offer the following observations: Careful inquiry into the history of certain cases of dermatitis (so-called eczema) reveals that the appearance of the skin lesions coincides with the development of foci of infection; that the skin lesions in such cases improve or entirely disappear upon the removal of such focus.

Persisting or recurring acne and furunculosis should lead to a search for focal infection.

I have had one case of long standing hyperhidrosis of the feet, in whom this symptom promptly and permanent disappeared upon the removal of a number of infected teeth. This case was primarily investigated because of albuminuria.

I have seen several cases of herpes zoster, in which the involved ganglia lay in the lymphatic paths which drained an infected area. In two of these (scalp infections), enlargement of the glands was demonstrable.

VI. Special Senses. Aurists have long realized that their middle ear infections were metastases or extensions from pharyngeal infections. Optic neuritis, retinitis, choroiditis, iritis, cyclitis, when not due to syphilis or other general infection, are usually dependent on focal infection, most frequently of the teeth or sinuses.

VIII. Psychopathic Group. Acute toxic psychoses have long been recognized as arising from both chemical and bacterial toxic agents. It would appear that a recognition of the role of infection in producing the more chronic type of mental disorders is growing, even since syphilis bagged a large percentage of psychopathic material. While some of the claims made of the relief of mental disorder accomplished by the removal of infected teeth may be over-enthusiastic, the claim is not entirely without foundation. I had several such cases in my service at the Walter Reed Hospital, 1917-1919, of which the following is an example:

A soldier, aged 42, with twenty years' service in the ranks, had for several years been top sergeant in a company of cavalry. Soon after the outbreak of the war, he was, along with other non-commissioned officers, promoted to the grade of second lieutenant. He promptly

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went on sick report, and after a period of observation at his post hospital, he was sent to the Walter Reed Hospital as a mental case.

I found him a man of fine physical parts, but affected with a profound depression, having the facies of a melancholic. His troublesome idea was that he was unworthy to be an officer; he had been long in the Army, and knew that with his lack of education he could never reach the standard he had set for a commissioned officer. Attempts to argue him out of this attitude, comparing him with officers who were his inferiors in qualification, appeals to his patriotism and his duty to place his experience in handling men at his country's disposal, were alike unavailing. So great was his conviction of his unfitness that he could not bring himself to eat at mess with other officer patients. He would get his breakfast early before the other officers arrived, go without dinner, and buy milk and sandwiches at the post exchange for supper. The diagnostic survey revealed that he had abscesses at the roots of all his remaining teeth. These were removed and artificial dentures supplied. After treatment he was given a month's leave, and then assigned to recruiting duty. I saw him six months later and found that every trace of his mental disturbance had disappeared. He professed himself ready for any duty, and I gathered that he was prepared to endure even a still further promotion.

Conclusion. We find that the sufferer from chronic infection has nearly always sought relief in many quarters before presenting himself. He has tried physicians, various therapeutic systems and cults without success. The failure is due to the fact that no one has ever found out what was the matter. A rather large experience in the analysis of chronic cases has led me to realize that a proper diagnostic study, employing all the resources and aids that have proven of value, will usually lead us to the correct solution. The most common defect in those who have preceded us appears to lie in a failure to appreciate the value of an adequate and properly weighed history.

An early correct diagnosis, accompanied by a sound prognosis and a rational therapy, will be the means of preventing much suffering and loss of efficiency, will save our patients much ill-spent money and time, and will redound to the credit of genuine physicians and the discrediting of commercial therapeutic systems and cults.

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DIAGNOSIS OF COMMON STOMACH DISEASES.*

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Physiological Considerations.

Internists, generally, now are disposed to place the motor or mechanical factors in a position of greater importance than that given to perversions or variations of secretory factors, in the early manifestations of the symptomatology of gastric diseases. In supporting this view, one should recall, (1) that the fasting stomach is in a state of tonic contraction and never empty, containing 50 to 100 c.c. of gastric juice, of HCl, and pepsin; (2) that hunger is characterized by rhythmic gastric systoles; (3) that repeated swallowing motions cause an inhibition of gastric tonus; (4) that food entering the stomach at once starts peristaltic action and this continues as long as food remains in the stomach; (5) that these peristaltic actions proceed from the parmedia toward the pylorus in rhythmic sequence, producing a constant pressure in the antrum; (6) that the first third cardiac of the stomach serves merely as a reservoir and, relatively, exhibits only slight peristaltic activity; (7) that 300 to 500 muscular waves (estimae) pass through the stomach per hour, when the stomach is emptying a meal.

In recalling the chemical and motor factors of gastric digestion, one should remember that the acid contents of the fundus close the cardia; (2) that the pylorus opens in response to motor and chemical influences; and (3) intermittently the gastric chyme is injected into the duodenum; (4) that the presence of acid chyme in the duodenum closes the pylorus and keeps it closed until the duodenal contents become neutral or alkaline, when the pylorus relaxes, receiving in this manner gastric contents until the stomach is empty of food. While the above statements are open to some question as to exact proof, the experiments of Cannon and other physiologists, as well as the observations of Smithers and other clinicians, seem to sup-

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port them. Bearing on this phase of the subject, the experiments of Miller, Bergeim, Rehfuss and Hawk,[2] Philadelphia, are worthy of a brief note here. They found that the sight of a neatly set table with nourishing food resulted in a distinct secretion of gastric juice in normal man; that odor, also, produced the same effect, but not so markedly; that tasting and chewing of food, without seeing or smelling, produced no marked secretion; that the combined stimulation of tasting, chewing and smelling of food produced a greater secretion of gastric juice than smelling alone; that the sound and thought, alone, of a frying beef steak produced a gastric secretion, but smell, and hearing alone produced little effect; that foods poorly or distastefully prepared and unsavory of odor or taste, with thoughts of unwholesome nature, resulted in a delayed acid secretion and a tardy evacuation of the stomach; that newspaper reading during a meal appeared to exert no influence on stomach function. These authors[3] also tested gastric response to tea, coffee and cocoa. Using a uniformly mixed meal in normal persons, upon drinking a liter of cold water, cold or hot tea, hot coffee, either plain, with cream, or with cream and sugar, they found that the evacuation time of the stomach was not significantly delayed; that the addition of sugar alone to plain coffee delayed emptying, that a liter of cocoa markedly delayed gastric evacuation, but small amounts had less effect; that these beverages, however, produced high acidity but, apparently, by this, the evacuation of the stomach was not delayed; that coffee with sugar alone delayed production of gastric acidity; that coffee with sugar and cream had less effect upon acidity; that cocoa distinctly delayed acidity. They observed that heart beats were markedly increased, vaso-motor relaxation, tremors and other nervous signs were produced by a liter of tea and coffee, while cocoa did not produce these effects but on the other hand excited a sensation of fullness of the stomach.[3] These authors[4] found that 100 grams of cane sugar or glucose in concentrated solution markedly retarded secretion and delayed the evacuation of the stomach; that small amounts (10 grams) did not act in this way; that candies inhibited secretion and retarded evacuation in proportion to amount taken. This effect was much modified by adding food, as milk, eggs or chocolate. These authors[5] found that the acid response and evacuation times of nearly fifty kinds of pies, cakes and puddings in normal persons were as follows: average time for puddings was 2 hours and 18 minutes, for pies 2 hours and 27 minutes, for cakes 3 hours and 2 minutes. The total acidity average for puddings 92, for pies 90, for cake 90. So puddings, while producing greater acidity, were handled better than pies, while cakes were less easily cared for than pies or puddings.[6]

Diagnostic Considerations.

I. Gastric Symptoms. The domain of subjective symptomatology in stomach diseases deserves accurate observation. Stomach trouble has its beginning, whether from causes within or without the stomach, in the appearance of a rather clear group of symptoms, often not adequately considered by physicians. In the patient's narrative of his past and present clinical history, it is important to note the development and the real nature of certain "troubles" that appear during gastric digestion. The loss of weight; the loss of appetite (anorexia); the appetite for unusual food (parexia); the excessive appetite at meals (polyphagia); the unsatisfied appetite (acorea); the burning sensation in epigastrum or sternal region before or after food; the regurgitation of gastric contents and the eructation of gas; the occurrence of pain, its time, duration, and character; nausea; vomiting; all these are symptoms directly related to gastric misfunction and should be early run down in order to understand their diagnostic significance. The fat-forty-female belches-gas-spells-gall-stone-aphrorism is an illustration of the interpretation of a late and quite common syndrome appearing in the domain of gall tract surgery, which the practitioner and the internist may rightly apply in the interpretation of common stomach symptoms. The feeling of distress after eating, a sense of distention or gas formation, associated with morning headache, dizziness, depression of spirits, drowsiness, lack of energy, muscular lassitude, and cramps, are usual subjective symptoms in stomach cases which every practitioner should clearly evaluate in terms of present misfunction or on-coming disease. Probably no more important investigation in subjective symptoms can be made than in the field of pain because pain is usually the

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symptom which causes the patient to consult the doctor.

Freidman[7] has divided gastric pain into continuous and intermittent varieties. The continuous types are due most frequently to, (1) carcinoma, (2) marked pyloric obstruction and (3) penetrating ulcer with peritoneal involvement. The intermittent pains are divided into (1) immediate, (2) early and (3) late: the immediate pains are found in (1) ptosis, (2) neurosis, (3) obstruction of the cardia, and other conditions; the early pains, including first hour after eating, are most often due to adhesions in any part of the stomch, including (1) ventral hernias, and (2) pericholecystitis; late pains (one to three hours after eating) are due to (1) intragastric pressure or (2) pylorospasm, usually resulting from hyperacidity.

The so-called hunger pain is thought by Hamburger and others to be due to strong contractions and intragastric pressure; this does not altogether satisfactorily explain them but the fact remains that, when present, this type of pain is accepted as an indication of chronic ulcer.

II. Gastric Analysis. Fractional analysis of gastric contents during the period of digestion has come to stay as a diagnostic method. It is a useful procedure and reveals many interesting points in the process of stomach functions but its two chief directions of information are to be found in (1) variations of motility of the stomach after the introduction of a test meal; (2) disclosing perversions of gastric secretion. If we know, for instance, that the simple Ewald test meal, which is the one of low acid and rapid evacuation variety, produces an acidity of more than 80 or less than 20, and evacuate the stomach only after two hours and a half or within one hour and a half, we may judge fairly accurately of the stomach misfunction by its use. Rehfuss and Hawk[8], in connection with rapid evacuation of the test meal from the stomach (hypermotility), give this test four general diagnostic explanations: (1) subacidity and achylia: (2) small percentage of duodenal ulcers: (3) a form of scirrhous carcinoma converting the pylorus and antrum into a funnel: (4) a group of stomach cases due simply to peristaltic overactivity (gastric chorea, French). To delayed evacuation (hypomotility) they give two diagnostic indications, (1) atonic stomachs; muscle defects with dilatation, (2) organic obstruction; as in contracting pyloric ulcer, carcinoma of the pylorus, hypertrophic pylorus, benign tumors, pylorospasm, syphilis of the stomach, adhesions from without (gall-bladder and pancreas, etc.)

As just stated, fractional analysis is an aid in determining the perversions of secretion. We may do well to recall some of the general conclusions of the above mentioned workers as to the diagnostic meaning in this function.

1. *Clean Digestion Group.* Cases of disordered or perverted secretion, without evidence of mucous membrane disease or irritation, are called clean digestion usually appearing as a digestive or post-digestive hyperchlorhydria (hyperacidity), seen often in the so-called reflex cases, as gall-stones, appendix and abdominal adhesions. The assumption is that the disorder of the secretory apparatus, appearing without mucosa irritation, comes through the nervous enervation of secretory glands of the stomach.

The "clean subacidity" fractional tests are ascribed to constitutional or metabolic diseases, as gout, thyroid disease, pellagra, etc.

2. *Mucus Group.* Fractional analysis of gastric contents discloses a second group that assumes rather definite diagnostic significance. This is called the mucus group. In cases showing gastric mucus, noting particularly the distinction between swallowed mucus and true gastric mucus indicates true disease of mucous membrane and introduces that large group of cases, the gastritis group. Some one has enumerated two hundred causes for chronic gastritis, a common condition of varied etiology.

3. *Secretion Variations and Intragastric Blood Group.* The fractional analysis of the stomach showing variations from the normal in secretion and the pressure with simple intragastric blood may reasonably be diagnosticated as ulcerations (minute erosions), acute ulcerations, (multiple erosions), chronic ulceration, carcinoma or gumma.

4. *Secretion Variations Plus Blood, Pus, Mucus and Bacteria Group.* This indicates diagnostically infection, inflammation and ulceration and may be indicative of serious infection—gastritis, gastric carcinoma or gastric syphilis.

III. X-Ray Examination. The study of gastric disease need not depend alone upon the

chemical analysis of its secretion or upon the time of evacuation of a test meal, because nothing contributes more to an accurate understanding of the disease of the stomach than serial radiography and fluoroscopy. The improvements of the apparatus for x-ray study of gastro-intestinal tract and the skill of the roentgenologist in the interpretations of the position, the peristaltic activity and the presence of adhesions, obstruction or pathologic structure in the stomach and adjacent region, are such as to make the internist and the surgeon far more assured of accurate diagnosis than is possible by physical examination or gastric analysis alone.

Carman's[9] contribution on the roentgenographic study of spasm of the stomach offers us a favorable opportunity to disclose x-ray values as a diagnostic aid. He mentions briefly in this connection that spasm of the stomach is either intrinsic or extrinsic: (1) intrinsic, if due to an intragastric lesion; (2) extrinsic, if due to lesions outside of the stomach. In ulcer three forms of spam may be distinguished: (1) incisura or hour-glass stomach: (2) diffuse spastic distortion of the stomach; (3) spasm of the pyloric sphincter. The defect or niche in these cases is persistent. Extrinsic spasms arising from ulcer of the duodenum, gall-bladder, and appendiceal lesions, usually are localized or regional, but sometimes produce total gastrospasm which is out of proportion to any physiological activity. He does observe that belladonna or atropine has no effect upon the intrinsic spasm, but in extrinsic type the deformity may disappear, after physiologic effect of the drug is attained.

Group Diagnosis.

The more modern trend in practice is back to the position of the general practitioner: to the grouping of specialists for a general study of the ailing body.

Specialism through recent decades has so increased scientific knowledge that each organ or system of the body has almost become a domain for the elaboration of a distinct science or specialty. This has brought about a large number of skilled specialists working in different fields of medicine. The inevitable isolation of such specialists, as they have become more and more engrossed in problems peculiar to the several specialties, has brought us face to face with the grave faults of this movement in medical practice which has made it imperative to bring about a change in the interest of efficiency and good faith.

So, to reap the benefits that specialism has brought and to escape the serious evils that its individulism has become by its natural use, an effort has sprung up to bring into operation a team-grouping of specialists for general and special study and general and special therapy of the diseased body, by what seems to be a salutary development, group medicine. We may forestall not only the menace of scientific "Stale Mate" but also a gross tendency to commercialism which has been showing itself in the system of referring patients from one specialists to another without a general or organized "interpreter." Group medicine should bring back in the person of group specialists the general practitioner who, in his time, did excellent work for his patients in the field of medicine, surgery, obstetrics and diseases of eye, ear, nose and the throat. So, a well mannered group of specialists, as experts of several fields of medicine, may serve with accuracy, fairness, and efficiency the diseased body and, by the application of special diagnosis and special therapy, effect cures.

Group medicine in the diagnosis of stomach diseases offers us an especially favorable opportunity for illustrating this newer arrangement in medical practice. Diagnosis of stomach diseases, as well as the treatment of them, may fall in the domain of several specialties. For instance, taking the so-called "reflex" indigestion group of stomach diseases, the association of the surgeon with the internist in diagnosis and the removal of the cause of this condition is quite important in this connection. In these cases, also, group assistants in the microscopic, pathologic and the x-ray laboratory form a most able help in successful etiologic diagnosis. The "reflex" stomach misfunction may get its primary etiology in an infected gall-tract, in a diseased appendix or in some other surgical condition. Only surgical treatment can be relied upon to replace the stomach in position for medical treatment. Again, to illustrate, in the dual field of the ophthalmologist and the internist may be found a quite considerable number of stomach diseases. Eye strain, and refractive errors are common causes of dysfunctionation. The proper treatment of

the eye condition is primary requirement before the internist can hope to succeed in restoring the stomach. So, the best etiologic diagnosis, often times, of stomach disease can be attained only after the patient has been reviewed and studied by a general group of experts. The more or less permanent association of such a group upon a basis of mutual respect and harmony makes the work stronger and more free of criticism and error.

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ONE HUNDRED PROSTATECTOMIES.*

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In reviewing the experiences derived from one hundred prostatectomies the following points influencing the diagnosis, prognosis, operative procedure, ultimate outcome and the mortality of the patient, have been observed by the writer. This series extending over ten years or more has brought out only in the last few years the dependence and faith to be put in the kidney efficiency as carried out by the phenolsulphonephthalein test. On several occasions patients have been brought in with acute retention which demanded an immediate suprapubic cystostomy. In this acute surgical state, there could be no delay for the estimation of the renal efficiency, so the blood urea examinations have been carried out to get a general reckoning of the patient's resistance for ultimate enucleation of the prostate.

An attempt to help the old man has been regularly adopted regardless of the physical condition he has shown on entering the hospital, and a suprapubic cystostomy under cocaine (and more recently novocaine) has been done in every instance of retention, a large tube being placed in the bladder and the radical operation of prostatectomy being delayed until the condition of the patient indicated that it was advisable. In a few instances (two) the prostate has been removed at the time of the suprapubic opening; in the remaining cases the enucleation follows the suprapubic cystostomy on an average of seven days. A few have been done on the fourth day, none earlier than this, and in one instance seven weeks elapsed before the big ordeal was attempted; while in another instance sixteen months elapsed. The old man (70), with extremely bad heart, made an excellent recovery and is well and happy six years after the operation. We are guided in our determination when to operate by the general condition of the patient, the temperature, wound, appetite, urinary output and findings, and when experience (a heavy-handed teacher) tells us that he is at his maximum for anesthesia and the shock of a major operation. It is better to wait a week too long than to operate a day too soon.

AGE. The average of all patients is 65, the youngest 51, the oldest 86.

RACE. There have been only 10 per cent. of colored men operated on, an apparent contradiction to the statement that previous venereal history and infection is one of the predisposing factors of prostatic enlargement.

KIDNEYS. A large per cent. of cases showed albumin and pus, and in six the hemorrhage was so great from some ruptured intravesical capillary that the clots effectually blocked the bladder outlet, demanding an immediate opening. This ruptured vessel is apparently at all times at the vesical margin of the prostatic urethra and automatically seals itself when the bladder is properly drained. The low specific gravity of interstitial nephritis obtained in twelve cases, and casts were found constantly in those cases, giving a history of long duration. The reaction is regularly alkaline and a low grade cystitis is present constantly. When there is a replacement fibrosis of the bladder musculature, the ureteral ora give way and *pyelitis*, *pyonephrosis* or *pyelonephritis* may be added with their train of symptoms. The urinary findings, the differential blood count and irregular temperature curve, with no pain, indicate the trouble.

HEART. This must be carefully noted, it being the organ of an old man. An acceleration of the second aortic was noted in several instances due to back pressure of the kidney. Myocardial changes, varying degrees of dila-

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tation, insufficiency and murmurs go with the prolonged strain and, although it has not been our practice to use any heart stimulants, the heart's action must be noted frequently and carefully.

Blood Pressure. The blood pressure being constantly taken in those instances when it ran high before operation, we were particularly concerned about hemorrhage, but noted a general recession of some 20 to 30 points following the enucleation of the gland. This blood letting at the time of operation is apparently of benefit to the old man, as has been noted above; the systolic pressure continues some 20 to 30 points less than before operation for several months, probably at the end of this time it gets back to its usual state, but during this time lessening the strain upon the heart has certainly been of benefit to the patient.

Arteriosclerotic Change. In one case in which there was evident palpable arteriosclerotic change, the patient suffered a hemiplegia under the anesthetic, succumbing in forty-eight hours following the operation.

Cystoscopic Examination. In but few instances was this carried out to further substantiate the diagnosis, as it has always been the writer's opinion that such a mechanical procedure was inadvisable if the diagnosis could be made by the history, rectal examination and urethral mensuration. In those instances in which cystoscopic examinations have been carried out, the varying pictures are of interest, for we recognize the infected bladder and the clean bladder, the eccentric and the concentric states. Trabeculae, large irregular hypertrophied bundles, may be seen here and there, between which are found diverticulae of varying shapes and sizes. In the eccentric dilatations, with the ureteral ora giving away, flakes of mucus and debris may be seen rushing in and out of the ureteral mouth in the act of inspiration and expiration. The picture of the prostatic hypertrophy varies in different instances, its margin irregular and, in the edematous state, whitish and translucent and projecting upward to varying degrees in the cavity of the bladder.

Rectal Examination. This has been made in every case and it is interesting to note the varying characteristics of the hypertrophied gland. Feeling only the posterior margins of the prostate, the intravesical projection and elevation cannot be determined by this means alone but with urethral investigation, the residuum, the prostatic length and the resistance to the catheter together give pretty accurate determination of the character of the growth and the projection into the cavity of the bladder, with the elevation of the internal sphincter above the bas-fond of the bladder.

Cancer. It has been stated that 22 per cent. of all the enlargements of the prostate are cancerous. This condition can be usually recognized by the finger in the rectum. The growth is almost invariably beneath the trigone, between the seminal vesicles and around the vas deferentia, and to the finger gives the sensation of great density, of even stony hardness. This is in marked contrast to the soft, spongy, elastic glandular overgrowth. There is also associated with cancer of the prostate, with remarkable constancy, a thickening of the bladder outlet and a sclerosis of the median portion of the prostate, so that the tissues about the internal sphincter show less resiliency and elasticity, so that catheterization of the bladder is most difficult and at times impossible. In our series we have had fourteen cases of cancer, and in one of these the infiltration was so great that enucleation was impossible. In the remaining cases the prostate was enucleated and radium used.

Radium. On two occasions after the use of radium inserted suprapubically and through the urethra following prostatectomy for cancer of prostate the resulting fibrosis was so great that there was apparently an obliteration of the deep urethra so that a permanent suprapubic opening was established. More recently a direct application of radium needles through the perineum into the substance of the prostate has been liberally recommended. This is done before any operation is carried out upon the bladder for drainage or attempted prostatectomy. A little cocaine injected into the skin of the perineum, a small nick with the scalpel and the long sharp radium needle carrying 15 to 25 mgm. is thrust into the actual substance of the prostate and left there from eight to sixteen hours. Later, if conditions justify, prostatectomy may be attempted, to be subsequently followed by the use of radium directly applied or by the cross-fire of X-ray.

More recently, when the suprapubic opening has been established, the writer has been

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plunging the radium needles through this opening into the very substance of the prostate, giving at least 500 mgm. hours.

Stones. In only six cases were stones present, these invariably in the bas-fond of the bladder and in only one instance was it agglutinated to the wall. There have been many cases operated on for stone in the bladder which was due to the retention of prostatic hypertrophy, producing pain and hemorrhage, and the stones removed, one suprapubically with cocaine, no attempt being made to remove the prostate as the condition of the patient did not justify this work.

Residuum. This varies in quantity and character; purulent, nasty and stinking in the cases of long history and great retention, to a satisfactorily clean urine in cases of shorter duration and less retention. The least amount has been some two or three ounces and the largest amount twenty-one ounces, the average being about nine ounces. This record is independent of retention cases in which the bladder is unable to empty any of its contents, our statistics being associated only with those cases in which there is the ability to void regardless of its effectiveness.

Urethral Infection. On several occasions we have had the opportunity to see a profuse urethral discharge following heroic attempts for the relief of acute retention. The suprapubic opening is established, and in one or two days a copious discharge is noted, which is probably aggravated all the more by a sticking together of the meatus and the urethra not being washed out with the urine. Investigation of the character of this pus shows staphylococci and extracellular diplococci. This is relieved by irrigations and instillations of argyrol.

Catheter Life. Five per cent. had been catheterizing themselves from several weeks to twenty years. In this latter case, the bladder had forgotten how to work and repeated daily educational attempts were only partially successful.

Blood Examination. There has been universally a slight increase in leukocytes and a remarkably high standardization of the hemoglobin count.

Phthalein. The average phthalein output in this series of cases is 54 per cent. On one occasion, a patient presenting himself for operation showed a phthalein output of 11 per cent., which absolutely contraindicated operation, the patient dying in convulsions a few weeks later. This is the lowest estimate we have had. The highest output happened to be in a man of 76 and was 70 per cent. This test has been uniformly estimated on the two-hour output and, proving so reliable and absolutely trustworthy, we have had no reason to discontinue it and try some other less reliable means for the accurate estimation of renal efficiency such as phloridzin, cryoscopy, etc. In one instance, the test showed 33½ per cent. for two hours and four days after the suprapubic opening, a gain of 12 per cent.

Blood Urea. This has been made only when the phthalein was unsatisfactorily obtained, or when we wished to further substantiate this test. Thirty per cent. is about the maximum; wide variations from this influence the judgment for operation as in the phthalein test. The maximum blood urea nitrogen is 18 per cent.

Preliminary Operation. At the time of the preliminary operation, the bladder is filled with sterile fluid, if it can be reached without trauma or irritation and, after having been thoroughly irrigated, the opening is made into the bladder for drainage with novocaine. This has been our invariable rule, and in only two cases has this preliminary drainage and prostatectomy been done at the same time. In both of these instances the patients were comparatively young and in very good condition. We have used the retained catheter in only two cases as a preliminary drain to prostatectomy. These cases were most tolerant to catheters, for we have not found the bladder as tolerant to this foreign body as some observers would lead us to believe.

Removal of the Tube. More recently, in about the last twenty to thirty cases, the suprapubic tube which is put in the bladder for drainage at the time of the preliminary operation is removed in two or three days and the urine is allowed to trickle through the wound into sterile compresses, which are frequently changed, the writer having observed, if the tube remains too long in the sclerotic tissues, a fibrous canalization occurs which certainly delays union and prolongs the convalescence.

General Anesthetic. Ether has been used in 98 per cent. and nitrous oxide in the remaining 2 per cent. for the radical enucleation. The writer has never attempted but once the enucleation of the prostate by a local anesthetic; this was successful, but the shock and distress was not justifiable when we have the narcosis of ether. The relaxation and freedom from strain which is obtained by ether makes the operation shorter and much more desirable than the anesthesia produced by nitrous oxide in which there is always some straining and which might encourage rupture of an artery from increased pressure. The two cases in which nitrous oxide was used were (1) a man with pronounced bronchial asthma, (2) the oldest of our series, 86, whose kidney efficiency never came up to the standard which we had hoped to get and we were always dubious about the outcome.

Dilatation of the Stomach. This has been observed in two cases, in one case following the use of N_2 O_2. Gastric lavage and rectal feeding combated this condition satisfactorily.

Enucleation. In five to twelve days, an average of eight days, the patient is prepared for enucleation of the gland. The bladder being irrigated and a few stitches cut, which were put in at the previous suprapubic cystostomy, the index finger of the left hand is inserted into the rectum to support the prostate and the index or middle finger of the right hand is inserted into the bladder and the intraurethral enucleation of the prostate is carried out as taught by Bentley Squier. In certain instances in which there occur intravesical snout-like projections, the prostate building up and hanging over anteriorly, presenting into the bladder as does a hard lacerated cervix in the vaginal canal of the multipara, the enucleation may be carried out by scratching through the vesical mucosa posteriorly over some prominent adenomatous hump and projecting the enucleation anteriorly. The writer has at all times been particularly careful about the recto-prostatic ligaments, these being torn at the expense of the prostate rather than at that of the rectum. It has never been our misfortune to lacerate or injure the rectal wall. It is fortunate indeed that the fascia of Denonvillier is so placed in this location as to act as an efficient and dense barrier against infection by the colon bacillus from the rectum. On removal of the prostate, a sound is now inserted through the urethra, but care must be taken to find the actual openings in the two layers of the triangular ligament. On several occasions, these openings have been determined with considerable difficulty. The beak of the sound is brought through into the suprapubic opening, the rubber tube of Hagner's bag is shoved on it, the sound withdrawn and bag blown up in the bladder and pulled down so as to compress the internal sphincter and, exvaginating it, block the prostatic cavity posteriorly so that there can be no greater hemorrhage than that which occurs between the sides of the bag and the prostatic sheath. In one instance, a hard dense sclerotic contracted prostate had had about six months previously an attempted suprapubic enucleation with no result. We tried also to remove the gland with an absolute failure. The perineal route should have been selected. In this instance, bad surgical judgment was evident, and the old man, now a year after operation, still wears a suprapubic canula.

Entering the Peritoneal Cavity. The complications at the time of this second operation, which is not usually considered, is, that the finger in breaking up the granulation tissue at the upper angle of the wound to gain the bladder for this enucleation may so break through these granulations as to burst into the peritoneal cavity. This has occurred to the writer on two occasions.

Idiosyncrasies. In one instance a most pronounced idiosyncrasy, iodine poisoning, occurred, the patient having a large generous urticarial rash, with cerebral symptoms, from having the abdominal wound painted with iodine before the operation. Cocaine at the time of the preliminary operation produced an acute poisoning which subsided.

The factors which confront us at the time of the operation are (1) hemorrhage, (2) shock and (3) post-operative complications.

Hemorrhage. The writer has uniformly used the Hagner bag in all cases, pulling it down well and holding it by the perineal support which we devised several years ago. We have never used the Pilcher bag, which is like the Hagner and has the added qualification of urethral drainage. The bag is kept taut for four to six hours, the air is then released, the patient watched for further hemorrhage and, in the event there is any, the bag is immediately blown up and pulled down again. This

may be repeated two or three times, or, as occurred in one instance, left constantly in place for forty-eight hours. Attention must be called to the bag *not* collapsing, the pressure of the forceps squeezing the tube so that the air does not get out of it. On releasing the forceps, the tube should be squeezed or rolled between the fingers to see that it is open and that the air can escape. The bag is usually removed twenty-four hours following the enucleation. We have never used the Pilcher bag or packed the cavity with gauze to control hemorrhage. Formerly, in an earlier series, we did use constantly the irrigation method following the enucleation, falsely supposing that the blood could be washed away as fast as it accumulated in the bladder from the torn, lacerated periprostatic plexus, and, because the color gradually changed from a scarlet to a light cherry red as the patient became more and more exsanguinated, we were pleased at the lessening amount of blood, but distressed in a few days that the operation was a success but the patient died, despite heroic doses of coagulose, epinephrin and other hemostatics.

Shock. This is treated as in all surgical conditions, particular attention being paid to the fact that the old man of threescore years and ten is not as resistant and strong as the younger patient. Constant vigilance and attention are, therefore, obligatory.

Post-Operative Complications. Post-operative complications of the suprapubic operation such as infection, pyelitis, septic nephritis, stone formation, incontinence, hernia, epididymitis, phlebitis, parotitis, pulmonary embolism, septic endocarditis and acute cardiac dilatation have occurred, and do occur, and should constantly be borne in mind. Fecal impaction and epididymitis are the most common. A suspensory and constant elevation relieve the tendency to the occurrence of the latter.

Infection. In one instance the bag was withdrawn. The tube, not having been thoroughly sterilized by a strong carbolic solution and infecting the prostatic pouch, gave rise to a violent infection which terminated the patient's life in a few days. Infection of the prostatic bed occurs probably in a much larger per cent. of cases than we think. The lacerated, torn vessels readily take up an infection from the base of the bladder. Irrigations of the bladder with a catheter through the suprapubic wound help this condition. At times this infection extends to the aponeurosis of the external oblique so that there is a distinct suppuration which produces a diastasis of the recti which delays ultimate union and may demand operation for closure of the suprapubic fistula. In only two of the above series of cases has it been necessary to sew up the suprapubic opening. In both of these instances was there an infection of the aponeurosis of the external oblique producing the suppuration above referred to. Invagination of the bladder wall by layer sutures of catgut and bringing together of the aponeurosis effectively blocked the opening. But one thing is certain, the least we do the better, and it has been noted that those cases which do the best are the ones to which we did the least and, although there is an accumulation in the base of the bladder and about the prostatic urethra, with epithelium and deposits, we are satisfied that this will come away in course of time, and it is a great mistake to attempt any irrigation per urethram. In one instance, fifteen days after the operation, irrigation of the bladder was carried out through the urethra, which resulted in repeated and violent urethral chills for several days, the patient finally succumbing to malignant endocarditis some two weeks later.

Pyelitis, pyelonephritis and unilateral haematogenous infection of the kidneys are at times noted. These latter two conditions are particularly serious, for, although the condition may be limited to one side, the patient at his age and having sustained a major operation is not a candidate for another.

Stone Formation. In two cases of our series there have been stone formations in the bladder following the removal of the prostate. In both of these instances there was at the time of the operation a chronic pyelitis, probably from back pressure and, although there was no residuum and satisfactory evacuation of the bladder obtained, the stone formed possibly in some small diverticulum between the hypertrophied trabeculae in the floor of the bladder. These were removed by perineal section.

Incontinence. There has never been an actual incontinence following the suprapubic operation for the removal of the prostate alone. In one instance in which the bladder had been catheterized for twenty years and had completely lost its tone, an external urethrotomy was done following the prostatectomy and a severance of the external sphincter muscle car-

ried out with its permanent dilatation to encourage an overflow, the patient wearing a urinal, which we considered a better outcome than the possible infection from repeated catheterization. Incontinence does occur from the infrapubic operation and, on two occasions, the writer has had the opportunity to operate for this condition with not the best result. In another case there was a continued frequency by night, three to seven times, the calls being only three or four times by day for urination. Rectal and cystoscopic examinations of this case were negative, urinalysis negative and residuum negative, so that the writer is of the opinion that it is a nervous phenomenon, independent of any sequel to the operation.

Hernia of the Posterior Wall of the Bladder. In one instance there was a marked abdominal distention producing a hernia of the posterior wall of the bladder, which was shoved so effectively through the abdominal opening as to cause a retention of urine, and the patient being the oldest of our series, 86, ultimately died.

Sounds. Whereas formerly sounds were used regularly following prostatectomy, on the ground that we believed a complete dilatation of the internal sphincter was necessary, this treatment is no longer observed. Nothing is done, either by irrigation, instillation, or otherwise, to interfere with the convalescence of the urethral mucosa.

Mortality. Recapitulation of the cases, the outcome and mortality, shows the following:

Thirteen cases were operated on, suprapubic cystostomy being done under cocaine or novocaine, the extreme debility being such that the patient never came to enucleation.

Hypostatic pneumonia	1
Apoplexy	1
Acute dilatation of the heart on sitting up.	1
Septic endocarditis	1
Infection on removal of Hagner bag	1
Uremia	2
Hemorrhage	3
Anuria	1
	11

In conclusion, the writer would emphasize that the responsibilities of the geriatrist are probably even greater than those the pediatrician encounters, for the pendulum has swung through its fullest arc and, at threescore years and ten, nature does not permit of surgical insults without the heaviest penalty.

POSTURE IN RELATION TO MEDICAL AND SURGICAL PROBLEMS.*

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It is rather difficult to discuss medical and surgical subjects at this time without in some way referring to the experiences and lessons learned by medical men in the recent war. One of the first and most important observations made by many of us was in regard to the physical fitness of the young men of this country within the draft age. When one takes into consideration that in the State of Massachusetts 46 per cent. of the drafted men were refused for physical disability (although this is probably higher than in many States, the average is somewhat alarming) the thinking individual—especially of our profession—should take counsel as to the cause and remedy for this condition. Especially so, when the great majority of those turned back had remediable disability: bad backs, weak pronated feet, poor teeth, etc. Of the two million sent overseas it is no exaggeration that many thousands, after the most rigid examination on this side, fell down on the job over there because of physical disability. And again the majority were remediable.

It is difficult to fix the blame for the rather poor physical condition of the young men of this country on any one group of individuals. Is it the fault of our profession? Of our system of training in the schools? Or, is it just general indifference of the public? I think that we as medical men fall far short in our mission in life if we confine ourselves to the combating either medically or surgically of existing disease, or to the advancement of preventive medicine, without taking into consideration more seriously the mechanical aspect in the causation of disease. I think we should become teachers of the parents, place our knowledge at the disposal of the graded schools and colleges, and bring before the young men and women the importance of the correct mechanical use of their bodies. And, after all, the human body is only a well organized piece of machinery—wearing out by incorrect use and resulting friction. It is interesting to note that one of our progressive colleges has this

*Read before the District of Columbia Medical Society, February 25, 1920.

year placed in its curriculum a course in physical education that is compulsory with every student.

That many of the individuals of the present day—classified as inefficient—can be helped by intelligent advice and instruction was proved beyond question in the overseas army. Many of these physically unfit were sent back to the base hospitals. Others, however, consisting of those with weak backs and bad feet, were formed into training battalions under the observation of experienced orthopaedic surgeons. The time was limited and the men were needed, but the work in these training battalions was remarkable. Many of the men after a few weeks of instruction and training went into combat duty. Others, for lack of time, were classified "B" and sent to the service of supply, where the work while hard did not require the same amount of physical and mental strain. At Base Hospital 114, a special orthopaedic hospital unit, there were established foot and back classes, and every convoy coming in brought new recruits of men with bad backs and weak feet. Classes were held twice daily. Attendance was compulsory, and the benefit derived was great. During the rush time, these men were formed into patient medical detachments—carried litters, acted as ward men and were used in various capacities. Many were sent back to their companies, capable of holding up their end of the work. I mention this to show that with proper training and corrective exercises these mechanically unfit individuals were made normal and capable of carrying on the most difficult work.

While the draft contained men from all walks of life—the farm, the factory and the office men of many nationalities and different home training, with varied degrees of intelligence—we can turn for further proof of relation of posture and health to one of our leading universities, to men from the better homes and with intelligent parents.

For the past few years students at Harvard, aside from the regular medical examination, have had an orthopaedic examination with special reference to posture. Lloyd Brown's findings in his examination of 746 men between the ages of sixteen and twenty-two years is rather interesting, especially so when, as he points out, at this age it would be reasonable to expect to find from every point of view a normal human being. Brown in his examination uses the schematograph, a reducing camera, and the image of the object is focused by means of a simple adjustment of the lens and by a mirror upon a horizontal piece of tracing paper, which takes the place of the ground glass used in the camera. In this way a very accurate tracing of the posture of the men is taken. Examinations are of very little value unless we can determine the normal human posture, and here so many factors have a bearing: health, disease, race, sex, emotions, occupation, etc. The classifications of flat back, round back, lordosis, and kypho-lordosis, and another given by Lovett under the heading round shoulders, round hollow back, round upper back, and flat back, while descriptive, are of little value used as a comparative measure in the examination of a number of men.

The vertical line test as used in the examination of Harvard students is quite efficient: A line drawn upward from the external malleolus or medio-tarsal region so that it passes through the trochanter or middle of the thigh would also pass through the shoulder and front of the ear. Using this test as more nearly the normal, any variations can be readily detected. This was especially so in the examination of the Harvard students, as the tracings show the exact outline of their bodies.

The most frequent variations noticed in these drawings were:

1. The variation of head and shoulder from vertical line, extending upward from the malleolus to the middle of the thigh.
2. Forward position of the thigh.
3. Relaxed abdomen.
4. Exaggeration of the normal curve of the spine.

The men were graded as follows:

Standard, or nomal, graded A.

Those with one, or slight, variation from standard, graded B.

Those with only two variations from standard, graded C.

Those with a variety, or extremes, of any or all points from normal, graded D.

Of the 746 examined there were only fifty, or 6.7 per cent., in grade A; ninety, or 12.1 per cent., in grade B; four hundred and thirteen, or 55.4 per cent., in grade C; one hundred and ninety-three, or 25 per cent., in grade D. To summarize: Eighty per cent. of the group stood in either C or D, while only twenty per cent. stood with their bodies in normal, or

nearly normal, position. In order to find out the relation between posture and the general medical condition of the individuals, Brown took fifty different groupings of the medical findings. These medical findings represented only those conditions which were noted by the medical men as abnormal, or worthy of further observation. Many of these findings include not only conditions found at the examination, but also those that happened in the past history. Of these fifty headings, thirty-three occurred in class A; thirty-eight in class B; forty-two in class C; forty-four in class D. This would seem to suggest that the C and D class were more prone to sickness than A and B. Each man in these groups was asked in reference to backache. Considering the age of these men, this question was not expected to give any results. However, it was found that there were no cases in A and B complaining of backache, while twenty-six, or 6.3 per cent., of class C, and seventeen, or 8.8 per cent., of class D gave such a history.

The question of albuminuria was most interesting from a postural point of view. Grade A showed one case; grade B, one case; grade C, fourteen cases; grade D, twelve cases. The medical men had found cardiac conditions, mostly functional, in a certain number of cases—about 4.7 per cent. These were graded as follows: Grade A, 2; grade B, 5; grade C, 14; grade D, 4. Looking on it from the surgical side, we find that in these groupings the operation for appendicitis occurred one and one-half times as often in grade C as in grades A and B, while two and one-half times as many men in C and D had had two or more operations.

To return to the standard, or normal, posture, Goldthwait's description is probably the best in current literature:

"In the upright position, the poise or attitude in which there is the least strain, and consequently the correct attitude, is with the body held so that it is made as tall as possible without raising onto the toes. In this position the head is erect, the shoulders thrown back so that their center is distinctly posterior to the center of gravity, the chest is high, the abdomen is flat and the spinal curves are slightly convex backward in the dorsal region and convex forward in the lumbar region. The pelvis is inclined forward so that the axis from the promontory of the sacrum to the top of the pubic bones is downward and forward 30° from the horizontal. In this position the anterior portion of the upper part of the sacrum, together with the last lumbar vertebra, is almost directly over the top of the great trochanter, or a little posterior to the center of the hip joint. In this position the Y ligament is made tense as well as the ilio-psoas muscle, these two structures serving to prevent the pelvis from lessening its forward inclination. In this position the ham-string muscles are tight, giving support to the knees as well as preventing an increase in the forward inclination of the pelvis. The knees are straight and the weight is received at the foot upon the astragalus with the posterior calf muscles tight, so that the heel rests lightly, and the chief strain is thrown upon the ball of the feet. The posterior calf muscles are tense, the result being that the posterior tibial and the peroneus longus by their contraction hold the tarsal bones in place, the foot thus being in the position of greatest strength, while the flexor muscles of the toes hold them in contact with the floor, giving a stable base and rendering the propulsion of the body possible with the least effort.

"The muscles of the trunk in this position are in such balance that while the anterior and posterior groups are in slight contraction, neither group is strained and but few of the ligaments are under tension. The shoulder is slightly back of the lateral median line of the body so that the weight is received largely upon the thorax, none of the muscles being in more than slight contraction, and the strain upon the posterior muscles which must occur when the shoulder is held forward is absent. The head is held erect and so balanced that while all the muscles, the anterior, posterior and lateral, are in slight contraction, each group is properly balanced by the others and none subjected to more work than they can easily perform. With the body so poised, not only is there the least possible expenditure of energy required for the maintenance of the position, but it is from this position that action is made most easily. All of the parts are in balance, so that whatever the movement, there is no waste of energy in correcting the poise or 'gathering oneself' preparatory to the action."

In the posture thus described, not only is the body in the best position for economic function, but the viscera also are benefited and are

held in the position most favorable for their function. Compare this type of individual with one of imperfect poise—head forward, rounded shoulders, flat or exaggerated curve of the lumbar spine, narrow costal angle and prominent abdomen. The very appearance of such an individual is one of inefficiency. In the exaggerated type, we have the flexed knees and so-called flat foot. In this connection, how futile it seems to fit supportive plates to the feet without paying attention to the fundamental cause—bad posture. One might as well remove the front tire that has worn from bad alignment of the wheels and put on a new tire and expect the evil to be corrected, without first getting the wheels in correct alignment.

It is not the purpose of this paper to go in detail into the many surgical and medical problems that bear close relation to poor posture. If it will bring before the Society members the importance of closer attention to the mechanics of the human body in relation to many problems, it will have served its purpose. There is probably not a specialty in medicine but will gain if the poise of the body is taken into consideration along with the general examination.

The close relation of visceroptosis and posture is apparent to the internist and the gastroenterologist. In the normal individual, the lumbar spine curves forward in such a manner that at the level of the fourth or fifth vertebra the anterior surface of the spine is nearer the front of the body than the back. The abdominal cavity at this level is relatively quite narrow, possibly not more than one-third of the thickness of the body. With muscle tissue and fat filling in the sides of the vertebral bodies, one readily appreciates the normal lack of space for organs other than a few coils of intestine. From the level of the fourth or fifth lumbar vertebra the spine inclines upward and backward, thereby enlarging on the diameters of the abdomen to allow sufficient space for the viscera which are practically all above this point.

"The posterior wall of the abdomen is made up of the spine, the upper part of the sacrum, the wings of the ilia, a portion of the diaphragm, with the free portions of the lower four or five ribs and the muscles of the loin. The sides and anterior wall of the abdomen consist practically wholly of muscle, the arrangement of the fibers being such that the greatest elasticity exists without sacrificing the element of strength. The proper tone of this anterior muscle wall is an important part of the support of the abdominal viscera. Besides this, the viscera are supported by ligaments, by the formation of the bony framework and by the arrangement of certain structures so that definite ridges or shelves exist, upon which the organs naturally rest. When the body is erect, all of these elements work to the best advantage. All of the abdominal muscles are made tense so that the organs are held firmly together with little liability to drag out of place. The ligaments are subjected to the least strain, and the organs rest most securely upon the ridges or shelves. In this position the kidneys cannot become displaced, the stomach cannot drag downward nor can the other viscera change their normal relations to each other."

With the anatomical relation of the organs in mind, it can readily be understood why, with the drooping forward of the shoulders and rounding of the dorsal spine and flattening of the lumbar spine, with relaxation of the ligaments and muscles of the abdomen, the viscera are prone to displacement downward. And further, as is so often the case in this type, the amount of inter-abdominal fat is so little that the normal padding is practically absent.

Of further interest may be mentioned diseases of the respiratory tract, especially pulmonary tuberculosis. If we accept the classification of many writers, there are three separate and distinct types; first, the relatively normal individual; second, the slender, or carnivorous; third, the heavy, or herbivorous; with, of course, the commingling of the different types in often the same individual. In the slender or carnivorous type individual, many so commonly seen, with narrow chest, narrow costal angle, we find them particularly prone to pulmonary tuberculosis. Why this should be so can be explained partly by the fact that these individuals are usually poorly nourished, blood pressure lower than normal—suggesting a low resistance—anaemic, and frequently a disturbed interglandular secretion. This type individual usually grows rapidly and early develops imperfect poise, with lowered ribs, slight chest expansion, rounded shoulders and the usual picture of poor poise.

The gynecologist is certainly interested, for

if the abdominal organs are visceroptotic they certainly encroach upon the pelvic cavity and produce pressure upon the organs therein contained, with resulting symptoms.

Posture is of special importance to the neurologist. There can be no question but that many of our so-called neurasthenics are individuals who present the usual picture of faulty poise. Granted that visceroptosis and posture go hand in hand, Lerch makes the statement that he has never examined a neurasthenic or hysterical patient in whom enteroptosis was absent.

Osgood, quoting Swaim, declares that he saw hardly more than twenty well postured individuals among the 3,000 at Clifton Springs—and who but can remember the blanket diagnosis of neurotic spine in so many of those poorly poised individuals with back pains.

From the viewpoint of the orthopaedic surgeon, correct posture has become something real and tangible—not that correct posture will cure everything in the category of medicine, but certainly it will help those many unfortunate individuals with heretofore unsolved problems. We cannot expect to obtain perfect results in all cases, but if these unfortunates can be relieved of their symtpoms and made more comfortable and efficient citizens, it is certainly worth our time.

Of far greater importance, however, is the early recognition of poor posture in childhood. If these children are taken in hand with corrective postural exercises and instruction, and the education of the parents undertaken, many will escape the problem of poor health in later years.

1621 *Connecticut Avenue, N. W.*

UNUSUAL RELAPSE IN TYPHOID FEVER.

By WM. H. HIGGINS, M. D., Richmond, Va.

The following case of typhoid fever is reported on account of the rather unique history:

The patient was a white man, age 37 years, whose previous history was uneventful, with the exception of a clearly defined attack of typhoid fever in 1901, lasting for four weeks. In 1911 he received institutional treatment for pulmonary tuberculosis with apparently satisfactory results.

In August, 1917, he was given three injections of typhoid vaccines. He remained in good health until January, 1921, when he developed a typhoid infection. His blood culture was positive for typhoid bacilli, and he ran a typical fever for two weeks, during which time rose spots appeared, and there were the usual clinical signs of an average typhoid fever without complications. After two weeks of convalescence, he returned to his work and remained well until March 23d, at which time he had a chill followed by a temperature of 103°. His blood culture was negative, and likewise his Widal reaction. His leukocytes were 7,000, with normal differential count, and a negative report for plasmodium. Aside from slight headache, there were no subjective symptoms, and his fever persisted for twelve days with the usual typhoid variations. During this period successive crops of rose spots appeared over his abdomen and, for the first time, his spleen became palpable.

There are three related points of interest in connection with this history; first, obviously the previous attack of typhoid fever did not confer a permanent immunity. In Osler's series of 1,500 cases, a history of previous infection was obtainable in only two and three-tenths per cent.; second, in spite of a previous attack of typhoid, and inoculation of three years' and four months' standing, a typical infection developed. The effectiveness of typhoid inoculations as a prophylactic measure against typhoid fever is now universally acknowledged. The only point at variance is the length of immunity conferred by the inoculation. The average period of safety is generally placed at three years; third, the most unusual point in the history is the length of period elapsing between the termination of the initial attack and the onset of the relapse, which was forty-seven days.

The diagnosis of a true relapse was made in accordance with the well-known dictum of Osler, to the effect that a relapse must be characterized by at least two of three important features of the disease; namely, a characteristic fever curve, enlargement of the spleen, and rose spots.

After a fairly complete survey of the literature, it appears that our patient showed next to the longest interval between attacks on record. Curschman, in Nothnagel's Encylopedia of 1905, stated that in his Leipsic series the longest interval of apyrexia was 53 days. In Allbott's series, one patient relapsed after a period of twenty-one days. In the 1,500 cases

recorded by McCrae from the Johns Hopkins Hospital, the average period was six days, and the longest was forty-three days.

We have, therefore, in this history a period of forty-seven days elapsing between the attacks, which, so far as is known, is the longest interval reported in this country.

Professional Building.

Proceedings of Societies

Medical Examining Board Of Virginia.

Of 62 applicants who applied for examination, June 14-17, 1921, to practice medicine in this State, the following 59 were successful:

Thomas Henry Amos, Boston, Mass.
J. C. Anderson, Chatham, Va.
O. O. Ashworth, Richmond, Va.
F. M. Aycock, Richmond, Va.
A. A. Bailey, Newport News, Va.
J. Hugh Bailey, Witt, Va.
Carl Bishop, Riner, Va.
W. M. Bland, Portsmouth, Va.
R. H. Chilton, Ocean View, Va.
H. L. Claud, Drewryville, Va.
C. C. Cockran, Richmond, Va.
Harold C. Cox, New York City, N. Y.
Russell M. Cox, Philadelphia, Pa.
R. L. Creekmur, Portsmouth, Va.
John M. Davis, Richmond, Va.
T. D. Davis, Richmond, Va.
R. R. Doss, Richmond, Va.
W. C. Duffy, New Haven, Conn.
T. J. Fitz-Hugh, University of Virginia.
R. F. Gillespie, Pounding Mills, Va.
James N. Greer, Washington, D. C.
Philip A. Hilton, Farmville, Va.
F. E. Hinchman, Richmond, Va.
W. H. House, Oak City, N. C.
C. M. Irvin, Richmond, Va.
Baxter S. John, Baltimore, Md.
Z. B. V. Jones, Norfolk, Va.
Allen M. Kimbrough, Richmond, Va.
Bender B. Kneisley, Strasburg, Va.
James G. Lyerly, Richmond, Va.
George R. Maloney, Richmond, Va.
E. H. Marsteller, Gainesville, Va.
Wm. B. McCutchen, Richmond, Va.
James P. McNeil, Johnson City, Tenn.
Richard H. Meade, Richmond, Va.
Wm. Ross Morris, Charlottesville, Va.
Charles S. Norburn, Philadelphia, Pa.
Florence W. Owens, Richmond, Va.
Robert M. Page, Batesville, Va.
Mosby Hall Paine, Lynchburg, Va.
Thomas B. Pearman, Richmond, Va.
H. I. Pifer, Richmond, Va.
Charles W. Putney, Richmond, Va.
C. A. Ransom, Washington, D. C.
J. K. Richardson, Richmond, Va.
W. M. Robinson, Richmond, Va.
M. B. Savage, Charlottesville, Va.
E. N. Shockley, Catawba, Va.
John K. Shumate, Richmond, Va.
Beverly C. Smith, New York City, N. Y.
Joseph E. Smith, Richmond, Va.
J. H. Smith, Charlottesville, Va.
A. L. Stratford, Richmond, Va.
A. C. Thompson, Richmond, Va.
Cuthbert Tunstall, Charlottesville, Va.
H. A. Wall, Norfolk, Va.
W. Herman Whitmore, Richmond, Va.
C. T. Wilfong, Richmond, Va.
R. Hugh Wood, Richmond, Va.

The following osteopaths took materia medica to qualify for surgery:

Dr. H. S. Beckler, Staunton, Va.
Dr. C. W. Irvin, Bristol, Va.
Dr. A. Harry Semones, Roanoke, Va.

Dr. Ernest B. Grasty, Reidsville, N. C., was admitted to examination on basis of five years' previous practice outside of the State.

The medical schools with the largest representation were the Medical College of Virginia with 29 applicants; the University of Virginia with 9; and Johns Hopkins University, University of Pennsylvania, and Jefferson Medical College, with 3 each. A number of other schools had one or two applicants.

The Bedford County Medical Society

Held its regular meeting in Bedford, August 19, with Dr. Joseph A. Rucker, president, in the chair. The attendance was good, the papers were interesting and discussions helpful. Those reading papers were Drs. J. A. Rucker, Bedford; K. D. Graves and W. R. Whitman, Roanoke; and Sam Wilson and J. W. Devine, Lynchburg.

Dr. J. M. Howell, of Big Island, was elected to membership. Dr. W. O. McCabe, of Thaxton, was elected delegate to the meeting of the Medical Society of Virginia in Lynchburg, and Dr. Joseph A. Rucker was selected as his alternate.

Besides those named above, the following were in attendance: Drs. M. P. Rucker, W. L. Lyle, Alfred Claytor, E. L. Johnson, E. L. Marshall and M. W. Gibbs.

Following the meeting, supper was served by the members at the Bedford Restaurant.

W. O. McCabe, *Secy.*

The Fredericksburg (Va.) Medical Association

Held its regular meeting in that city, August 26, at which time interesting papers were presented by Dr. Lee Cooke, of Fredericksburg, and Dr. Howard Masters (invited guest), of Richmond. Present officers of this Society are Drs. Roderick Dew, of Woodford, president, and Dr. J. N. Barney, of Fredericksburg, secretary.

The National Board of Medical Examiners

Has just completed the first five years' work and with it the trial period of its usefulness.

The principle which this Board has stood for, namely, the establishment of a thorough test of fitness to practice medicine which might safely be accepted throughout this country and abroad, has been widely accepted. Since this Board was organized by Dr. W. L. Rodman, in 1915, eleven examinations have been held. These examinations have been conducted on the plan of holding at one sitting, a written, practical and clinical test for candidates with certain qualifications, namely a four-year high-school course, two years of college work, including one year of Physics, Chemistry, and Biology, graduation from a Class A Medical School and one year's internship in an acceptable hospital. These examinations have covered all the subjects of the medical school curriculum and have been conducted by members of the Board with members of the profession resident in the place of examination appointed to help them. Such examinations have been held in Washington, Philadelphia, New York City, Boston, Chicago, St. Louis, Rochester (Minnesota) and Minneapolis. During the war a combined examination was held at Fort Oglethorpe and Fort Riley. There have been 325 candidates examined, of whom 269 have passed and been granted certificates.

Starting with the endorsement of the Council on Medical Education of the American Medical Association, American Medical College Association and various sectional Medical Societies, the recognition of the Army, Navy and Public Health Service Medical Corps of the United States and certain State Boards of Medical Examiners, the certificate is now recognized, also, by twenty states, as follows: Alabama, Arizona, Colorado, Delaware, Florida, Georgia, Idaho, Iowa, Kentucky, Maryland, Minnesota, Nebraska, New Hampshire, New Jersey, North Carolina, North Dakota, Pennsylvania, Rhode Island, Vermont and Virginia, the Conjoint Board of England, the Triple Qualification Board of Scotland, the American College of Surgeons and the Mayo Foundation of the University of Minnesota.

There has been such a wide-spread demand for an opportunity to secure this Certificate by examination, that the Board has now adopted and will put into effect at once, the following plan: PART I, to consist of a written examination in the six fundamental medical sciences: Anatomy, including histology and embryology; Physiology; Physiological Chemistry; General Pathology; Bacteriology; Materia Medica and Pharmacology. PART II, to consist of a written examination in the four following subjects: Medicine, including pediatrics, neuropsychiatry, and therapeutics; Surgery, including applied anatomy, surgical pathology and surgical specialties; Obstetrics and Gynecology; Public Health, including hygiene and medical jurisprudence. PART III, to consist of a practical examination in each of the following four subjects: Clinical Medicine, including medical Pathology, applied physiology, clinical chemistry, clinical microscopy and dermatology, Clinical Surgery, including applied anatomy, surgical pathology, operative surgery, and the surgical specialties of the diseases of the eye, ear, nose and throat; Obstetrics and Gynecology; Public Health, including sanitary bacteriology and the communicable diseases.

Parts I and II will be conducted as written examinations in Class A Medical Schools, and Part III will be entirely practical and clinical. In order to facilitate the carrying out of Part III, subsidiary boards will be appointed in the following cities, Boston, New York, Philadelphia, Minneapolis, Iowa City, San Francisco, Denver, New Orleans, Baltimore, Galveston, Cleveland, St. Louis, Chicago, Washington, D. C., and Nashville, and these boards will function under the direction of the National Board. The fee of $25.00 for the first part, $25.00 for the second part and $50.00 for the third part will be charged. In order to help the Board the Carnegie Foundation has appropriated $100,000.00 over a period of five years.

At the annual meeting, held June 13th, of this year, in Boston, the following officers were elected: M. W. Ireland, Surgeon General, U. S. A., President; J. S. Rodman, M. D., Philadelphia, Secretary-Treasurer; E. S. Elwood, Managing Director.

Mr. Elwood will personally visit all Class A Schools during the college year to further explain the examination, etc., to those interested. Further information may be had from the Secretary-Treasurer, Medical Arts Building, Philadelphia.

Correspondence

Precautions Against Diptheria.

TO THE DOCTORS OF VIRGINIA:

Our records show that diphtheria begins to increase in August and reaches its height in

November. At present more cases of diphtheria are reported than usual at this season, so we fear a bad year.

Deaths from diphtheria occur in rural sections more than in cities. This is doubtless due to the difficulty of securing antitoxin promptly in the country. To avoid this difficulty, we are making the following proposition to the doctors in rural sections:

We will furnish each doctor one package of 5,000 units and one package of 10,000 units of diphtheria antitoxin, provided—

First, that the doctor will carry the packages in his medicine bag, so they will be available on his first visit to a diphtheria patient. We recommend giving antitoxin promptly upon suspicion, and not waiting for a report upon a culture. A large dose is advised.

Second, that the doctor agree to pay for it when used and to re-order a package. The same credit will be again extended.

Third, that, if the package shall not be used, the doctor will return it when it becomes outdated—that is, after the expiration of the date on the package.

We trust that you will accept this proposition. It cannot cost you anything. You will pay no money until you have used the antitoxin. Having it with you may very probably result in the saving of a life.

If you wish to accept our offer, write the State Board of Health, and this and subsequent orders will be filled promptly. Our credit offer applies to two packages.

The price list for antitoxin is as follows:

1,000 units	$ .35
5,000 units	1.35
7,500 units	2.00
10,000 units	2.25

This proposition should save many lives.

Ennion G. Williams,
State Health Commissioner.

The Truth About Medicine

In addition to the articles enumerated in our August issue, the following articles were accepted by the Council on Pharmacy and Chemistry of the A. M. A. during June:

Lederle Antitoxin Laboratories:
Pollen Antigen—Lederle (Ragweed).
Pollen Antigen—Lederle (Timothy).

During July the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion in New and Nonofficial Remedies:

The Abbott Laboratories:
Argyn.

Hoffmann LaRoche Chemical Works:
Papaverine Sulphate Tablets—Roche.

Nonproprietary Articles:
Casein.

Book Announcements

A Manual of Gynecology. By JOHN COOKE HIRST, M. D., Associate in Gynecology, University of Pennsylvania; Obstetrician and Gynecologist to the Philadelphia General Hospital. 12 mo. of 466 pages with 175 illustrations. W. B. Saunders Company, Philadelphia and London.

The special chapter on leukorrhea alone, one of the commonest disorders for which a patient consults her physician, is worth many times the small price of this concise, valuable little book. The technic of operations and the office treatment are briskly described but with the sure touch of the well grounded man. Written from the viewpoint of gynecologist and obstetrician it is doubly worth while. G.

An Outline of Genito-Urinary Surgery. By GEORGE GILBERT SMITH, M. D., F. A. C. S., Genito-Urinary Surgeon to Out-Patients, Massachusetts General Hospital. 12 mo. of 301 pages with 71 illustrations. Philadelphia and London. W. B. Saunders Co.

This is a very satisfactory book for the general practitioner. It covers all the essential points in the symptomatology, etiology and pathology of genito-urinary diseases. The treatment is practical and up to date. The case histories given are from the author's own cases, either in private practice or from his clinic at the Massachusetts General Hospital. It can be recommended in every way. S.

The Health Officer. By FRANK OVERTON, M. D., D. P. H., Sanitary Supervisor New York State Department of Health, and WILLARD J. DENNO, M. D., D. P. H., Medical Director of the Standard Oil Company. Octavo of 512 pages with 51 illustrations. Philadelphia and London: W. B. Saunders Co., 1919.

This book is for health officers—tells them what to do, how to do it, and why. As the authors have had many years' experience in public health work, it may be considered of good value. In fact, students, social workers, nurses, etc., will be much benefited from studying it from cover to cover. G.

Clinical Microscopy and Chemistry. By F. A. McJUNKIN, M. A., M. D. W. B. Saunders Company, Philadelphia and London. 1919.

The ground covered in this volume of 381 pages is mainly that of the routine laboratory

technic employed in tests made in connection with every day experience. The subject matter is arranged under five headings: Blood; Sputum, Serous Fluids and Exudates; Urine; Gastric Contents, Feces; and an additional chapter is entitled Histologic and Autopsy Technic. Under each of these headings methods employed in interpreting the significance of clinical findings are carefully explained. Especial emphasis is made by the author on the clinical application of these chemical and biologic methods. As a text book it is clear and comprehensive and as a reference book for those whose memories need occasional refreshing in technical procedure, it should prove very helpful. The chapter on the histologic work of a hospital laboratory as well as that on autopsy technic are a valuable addition to the main subject matter and many helpful illustrations serve to further clarify the text. S.

Diet in Health and Disease. By JULIUS FRIEDENWALD, M. D., Professor of Gastro-Enterology in the University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, and JOHN RUHRAH, M. D., Professor of Diseases of Children in the University of Maryland and College of Physicians and Surgeons, Baltimore. Fifth edition, thoroughly revised and enlarged. Philadelphia and London: W. B. Saunders Company. Octavo of 919 pages. Cloth $6.00.

This standard work appears in its fifth edition, which bears testimony to the favor it has met in the medical profession. The subject of dietetics is growing in importance and it behooves us to have and study some authoritative work like the one before us. Among the new articles which we observe in this edition we may mention the ones on vitamines, amino-acids, food allergy, Sippy's diet in peptic ulcer, etc. Many articles have been revised, in others new material has been added, as in the chapters on infant feeding, diabetes, acidosis, pellagra, etc. This is an exceptionally high-grade book and cordially recommended.

S.

Freaks of Population.

A curious freak is shown in the latest Austrian census of population. There are 300,000 fewer children under 10 years of age in that country than in 1910, while the number of men between 40 and 60 years of age has increased by 120,000. This is explained, it is believed, by the fact that adults could better stand the privations of the last few years than children.

Hope To Enlarge Pine Camp.

It is understood that a resolution is to be offered in the Richmond Ciy Council, asking for $50,000 for the enlargement of the capacity of the city's local tuberculosis sanitarium—Pine Camp. The present capacity of the camp is thirty-seven beds, but there is a long waiting list, so it is hoped an appropriation may be made so as to increase the total capacity to sixty-five beds and make other necessary repairs and additions. The death rate from tuberculosis in Richmond is now stated to be only one-third of what it was fifty years ago.

Work of T. B. Clinics.

In the last five free chest clinics held by the Virginia Tuberculosis Association in Page, Rockbridge, Buckingham, Botetourt, and Highland Counties, there were found seventy-eight active cases of tuberculosis and eighty-eight cases with suspicious symptoms. Nine hundred and fifty-five cases were examined and large numbers who attended the clinics had to be turned away because the doctor was not able to see them all.

The people show an eagerness to be examined and seem anxious to take advantage of the instructions given.

Beer Not Yet To Be Used As Medicine.

Beer as a medicine was doomed the last of August by the Treasury, unless Congress, after its recess, should fail to enact the Willis-Campbell anti-beer bill. Secretary Mellon, in conference with Internal Revenue Commissioner, Blair, decided that regulations already drawn, which would permit physicians to prescribe a case of beer at a time with no limit on the number of prescriptions, should be held up by the Treasury, pending investigation of the medical beer question by Congress.

The U. S. Civil Service Commission,

Washington, D. C., is requesting applicants for the positions of roentgenologist, associate roentgenologist, assistant roentgenologist and junior roentgenologist, applications to be rated as received until December 1, 1921.

Also, applications for position as associate in clinical psychiatry and psychotherapy will be rated as received until November 1, 1921.

Both examinations are open to all citizens of the United States who meet the necessary requirements, both men and women. If interested, secure detailed information from the above named Commission.

XUM

Virginia Medical Monthly

FOUNDED BY LANDON B. EDWARDS, M. D., APRIL, 1874.

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PUBLISHED BY THE PUBLISHING COMMITTEE.

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AGNES V. EDWARDS, Editor's Assistant and Assistant Manager.

All correspondence regarding editorial matters, articles, advertisements, subscription rates, etc., should be addressed to the Journal.

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Editorial

Pellagra In The South.

The U. S. Public Health Service has issued statistics on the alarming increase of pellagra in the South. The figures show that there may be double the number during the present year as compared with last year, and that in some parts of the South the increase will triple previous records. In one State where the figures are at hand, 1,817 cases developed in May, 1921, in comparison with 677 cases in May, 1920. The situation is said to be due to the failure of the cotton crop, making it necessary for the small farmers to resort to salt pork, corn bread and molasses as their daily diet without alteration. (J. A. M. A., July 30, 1921. Pg. 385.)

Virginia has cause to feel pleased that returns, available, do not disclose an increased incidence of pellagra in this State. In our south country, according to reports, there has been a marked increase of this disease within the past year. There is a fear of a greater number of cases this year in certain localities. There is no occasion for undue anxiety, but there is every reason for the profession and the public to exercise every measure, that it is possible to command, to teach the use of a balanced diet, particularly emphasizing eggs, milk, milk products, and vegetables; to inculcate the tenets of personal hygiene, particularly the careful cleaning of the teeth and mouth after eating; to teach rules of adequate rest; careful attention to the body habits; and the maintenance of body weight to proper standard; to instruct persons affected with chronic ailments, of digestive, cardio-vascular, respiratory or nervous system, to apply to physicians for treatment and instruction.

Poverty, ignorance, and lack of co-operation are obstacles to be overcome. The encouragement of rural people to cultivate vegetable gardens, to raise chickens and to keep cows and to diversify the farm products in order that a greater variety of foodstuffs may be more easily obtained, is another way by which the health and strength of any community may be protected, not only against pellagra but also against other diseases, whether a deficiency or infectious disease.

In view of its greater incidence, physicians may be on the alert to detect in patients the symptoms of pellagra. The disease during its early manifestations seems to yield with marked effect to dietary and remedial measures, while the late or grave types withstand the most vigorously conducted regimen.

Pellagra sine pellagra, showing its symptomatology in the gastro-intestinal tract, or in the nervous system, or in both, is a particularly insidious and evasive form of the disease.

HOW DOCTORS MAY BEST HELP RELIEVE THE SHORTAGE OF NURSES.

"If every physician in the state will look his responsibilities in this matter squarely in the face and attempt to get one of the best educated, best bred and most capable women in his county interested in nursing right away, he will be performing a great public service."—(Ky. Medical Journal.)

The Trained Nurse.

The country over there is a shortage of nurses. This shortage is due to conditions which we need not now, here, undertake to discuss. The need is evident to every doctor.

The best way to secure relief is for each physician, as he goes about among his clientele, to make it a personal matter to encourage properly equipped young women to take up the profession of nursing. There probably is no training through which a young woman may go, upon the threshold of life, more helpful than that found in a training school for nursing. From the standpoint of physical fitness, the training school for nurses is a splendid institution: regular hours, wholesome food, adequate physical exercise, make for a well set-up body for after life. From the standpoint of medical science, the training school for nurses teaches the laws of the body in health

and disease, and inculcates a wealth of knowledge which must fortify every woman through whatever after-life she may pass. From every standpoint the training of the nurse, when conducted in a training school of high moral, ethical and scientific standards, is a valuable asset to any woman, and no doctor may feel any misgivings in urging a proper young woman to seek opportunity to engage for a course in a high standard training school for nurses, but rather every doctor may feel that he is doing a good to the young woman and a good to the public.

Doctor! look out for qualified young women and encourage them to enter the nursing profession!

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Good Roads and the Legislature.

This legislature will be unique in one particular. Probably never in the history of this Commonwealth has the personnel of the representatives of legislature been more directly selected by medical men and medical influences. Probably never before have members of the legislature been more truly selected to do a big medical thing for Virginia. This is a tremendous fact which is fraught with great possibilities.

While there may be differences of opinion in the legislature where to locate the new medical school, there are other problems intimately affecting medical matters and health problems of our State, on which there is and can be no division. This significant fact that the legislature represents in an unprecedented way medical opinion and thought may be taken advantage of in the development of our road system. Let the doctors exert every possible influence and see if Virginia cannot get permanently built roads. This is a health, a medical and an educational problem, of great importance, and one which this legislature should meet in a masterful way. Ways and means should be provided for State-wide permanent improvement of the highways of our State on a big up-to-date engineering plan.

Let this generation plan and build for this and succeeding days in order that Virginia may catch up with other States in the next fifty years.

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The Virginia Medical Monthly and the Medical School.

For many months, unsolicited, we have conducted a department on medical education. In this department there have been printed extracts from the writings of foremost men of the country as to what constitutes a modern medical school. This was done with the hope of interesting our readers in the subject and preparing our minds, somewhat, for the issue that is now upon us. This department has been conducted absolutely impartially, so far as we are aware.

The question of the location of the new school has not been touched upon by us editorially. The editor, in the editorial columns, has followed impartial lines of action, because he believed he had no right to use the columns of the editorial page on a question so sharply contested among members of this Society. This journal is the property of the Medical Society of Virginia. The Society has not expressed itself. If it does express itself for one location, then and only then may the editorial columns be used for the purposes of advancing that choice.

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Every one must feel that Virginia will de-

The Medical School.

cide this important matter in the right way. Certainly there has been an unprecedented State-wide agitation and public discussion of this problem for months. The fact that should be uppermost in every right thinking mind is to evolve, out of these two medical schools, a better school, in order that Virginia people of today and those of tomorrow shall be served by as good a type of physician as this country can produce. Virginia should not be satisfied with anything less. If what we have now is satisfactory, the conclusions of the Medical Commission are wrong and the general opinions of foremost medical men of the State are wrong.

Neither school is satisfactory as it now is. The time has come for Virginia to have a great medical school. It should be capable of instructing adequately a reasonably large number of medical students in the elementary subjects of medicine: it should command ambulatory and hospital patients of sufficient number: it should be manned by foremost medical teachers assisted by a large corps of laboratory and clinical teachers.

When a student graduates from the Virginia supported medical school he should be a well-trained man.

News Notes

To the Members of the Medical Society of Virginia.

As the time approaches, we wish to keep before you the date and place of the annual meeting of the Medical Society of Virginia, viz., October 18th to 21st, inclusive, Lynchburg, Va.

The local committee of arrangements is already active in making ample preparations and we believe the needs of the organization at this meeting will be well cared for. The annual session held here in 1913, had the largest attendance of any previous meeting outside of Richmond and our facilities then received the commendation of the officers of the Society and were altogether adequate. We hope to have even a larger attendance this time and to surpass our former efforts in providing for the comfort and pleasure of the members and guests.

Dr. F. O. Plunkett, Lynchburg, Va., is looking after the housing facilities and would be pleased to have all who desire lodgings reserved in advance communicate with him. Have him reserve your room as early as possible.

Dr. Robert D. Caldwell, Lynchburg, Va., has charge of arrangements for the Scientific Exhibit and those interested will please address him. The Commercial Exhibit this year promises to be unusually good, judging by the large number who have already engaged space.

Mrs. R. M. Taliaferro is in charge of the preparations for the entertainment of visiting ladies and proposes to see that their time here is pleasantly occupied.

GEO. J. TOMPKINS,
Chairman Local Com. Arrangements.

On To Lynchburg!

Time for the meeting of the Medical Society in Lynchburg is approaching rapidly and it is time for those to fall in line who expect to attend. Have you made your reservation? There is a plenty of room for every one who will wish to attend, but, naturally, the best rooms will go to those who engage them in advance. The scientific program promises much of interest and an unusually large number of spaces have been engaged for the commercial exhibit.

This will make the fifth time in the history of the Society that it has met in Lynchburg and the hospitality on former occasions is so well remembered that it leaves nothing to be said. Doctors are expected to bring their wives and daughters, and the Lynchburg ladies will look out for their comfort and entertainment. An automobile ride has been planned for the ladies to visit Sweet Briar College, Wednesday afternoon, and a dance at the Oakwood Country Club for Thursday evening.

Component County Societies which have not appointed their delegates should do so at once and send their names to the Secretary-Treasurer of the Society, G. H. Winfrey, Richmond, so there will be no delay in having them seated in the House of Delegates.

Good Work Being Done By The Va. T. B. Association.

To date the Virginia Tuberculosis Association has held four day free chest clinics in twenty-eight counties, and has twelve more scheduled before the end of the year. While reports have not yet come in from two of these clinics the records in hand show the following results:

Total examined, 4,532; active cases of T. B.

found, 345; suspicious cases of T. B. found, 517; arrested T. B., 96.

The findings in each case have been reported to the family physician of the patient, together with information regarding diseased tonsils, defective teeth, heart trouble, etc., noticed by the examiner. The active and suspicious cases of tuberculosis have been visited in their homes following the clinic by the Association's nurse, who gave instructions for home care or filled in the application for admission to a sanatorium, in accordance with the instructions of the clinician, and in co-operation with the family physician. To those needing them a month's supply of sputum cups with holder, and paper handkerchiefs, were furnished by the nurse, in addition to tuberculosis literature issued by the Association.

The largest clinic of the year took the form of a tuberculosis demonstration and was held in Petersburg, at the new Health Center, from September 5th to 10th, inclusive. The following well known tuberculosis specialists acted as examiners, four being in constant attendance each day: Drs. E. E. Watson, Mt. Regis Sanatorium; T. N. Davis, Lynchburg; C. L. Harrell, Norfolk; W. B. Martin, Norfolk; Garnett Nelson, Gerald A. Ezekiel and James Smith, all of Richmond.

Prior to this clinic, a great deal of publicity was given to it by the local ministers, physicians, Chamber of Commerce, police and visiting nurses.

The conduct of clinics and other activities of the Association are made possible by the sale of the Christmas Seals. Last year the sales in Virginia amounted to $54,075.35. Five per cent of this was given to the National Tuberculosis Association (as by all states) for research and administrative work.

From observations made throughout the State, Mr. Spear, Executive Secretary of the Virginia Tuberculosis Association, states that the crying need of this State is for a Free Bed Sanatorium for the treatment of all stages of pulmonary tuberculosis.

Traveling Libraries Are Free.

Do you know that the Virginia State Library will lend you and your neighbors a collection of from twenty-five to fifty books FREE? Each collection contains books of fiction, poetry, travel, history, biography, science and other branches of literature, and the collection, borrowed by your school or community, may be kept for six months or longer. There are books on farming, dairying, fertilizing, draining, the care of cattle, sheep, hogs and other animals, orcharding, bee-keeping, etc., and all are free.

Though the books are for all classes of our Virginia people, it is probable that the needs of those of rural districts are more particularly kept in mind when new books are purchased, as it is the especial desire of those connected with the State Library that the books go into the districts of the State farthest removed from towns and railroads, as people in these districts need them most.

For further information as to the books in the various collections and also for application forms, address H. R. McIlwaine, State Librarian, Richmond, Va.

Child Welfare in Belgium.

Through the second International Conference on the Protection of Childhood, held at Brussels, from July 18 to 21, the attention of the world has been called to the program Belgium is working out for the conservation of childhood. The first step in the medical reconstruction of industry after the war was the establishment of an independent Labor Medical Service, which includes in its function the protection of expectant and nursing working women and the care of the health of working children.

In the United States, eighteen States provide for the physical examination of every child entering industry, but no State has provided for examinations of working children at regular intervals. Belgium has adopted the advanced program of a medical examination for every juvenile not later than a month after he has entered an industrial occupation, to be repeated once a year until the child reaches eighteen, and oftener in cases of disease.

A national children's board has been established, which is maintained by public and private funds, and which supervises and supports child welfare organizations meeting certain conditions. The child welfare program includes the periodical free examination of children under three years of age brought by their mothers for examination; the establishment of free medical dispensaries for expectant mothers; the diffusion of knowledge relating to infant health and maternal nursing; and the supervision of boarded-out children under seven years of age. The cost of child wel-

fare work will be borne one-half by the state, one-fourth by the province, and one-fourth by the municipality. Provincial and municipal boards are appointed by the national board, and advisory committees are provided for.

The Southwestern Virginia Medical Society

Will hold its regular fall meeting in Marion, September 21 and 22. There are fifteen papers listed for this meeting, three of which are by invited guests. Every preparation is being made for the comfort and entertainment of the visiting physicians and this meeting is expected to be one of the most largely attended and best meetings in the history of the Society. Dr. Z. V. Sherrill, of Marion, is chairman of the local committee of arrangements, and he is being assisted by Drs. G. A. Wright, E. H. Henderson, S. W. Dickinson, and Chas. B. Baughman, all of Marion. Drs. W. R. Rogers, of Bristol, and E. G. Gill, of Roanoke, are president and secretary-treasurer, respectively, of this Society.

Clinic in Warrenton.

During the summer, a nose, throat and ear clinic was held in Warrenton, Va., and individual citizens and various local organizations contributed in every way to its success. There were 110 applicants for treatment, but as some were too late and a few above age, only 94 were operated on. Of these 61 were white and 33 colored. The success of this clinic was largely due to the untiring efforts of local doctors. Dr. James Morrison, of Lynchburg, with two able assistants, was in charge of the operations.

Dr. C. C. White,

Of Mathews, Va., had the misfortune to lose his offices in a fire which wiped out the business district of Mathews C. H., on August 23.

Eliminate Medicine Tax.

According to the Associated Press, elimination of taxes on proprietary medicines was agreed upon on August 19, by the House Ways and Means Committee, which approved a number of other changes in the Republican tax bill.

Dr. P. S. Roy,

Of Washington, D. C., was one of the August visitors at Tappahannock, Va., which was the Doctor's native home.

Appointments on State Board of Health.

In a list recently announced by Governor Davis, Dr. Edward McGuire was reappointed to the State Board of Health for a term of four years, from the City of Richmond; Dr. Harry T. Marshall, University, was reappointed for a term of four years to represent the Seventh Congressional District; and Dr. Hugh J. Hagan, Roanoke, was appointed for a term of four years to succeed Dr. Geo. B. Lawson, Roanoke, as representative from the Sixth Congressional District.

The American Roentgen Ray Society

Is to hold its annual meeting in Washington, D. C., September 27-30, under the presidency of Dr. Arthur C. Christie, of that city. Dr. H. E. Potter, of Chicago, is secretary of the Association.

Dr. John W. Carroll,

Of Lynchburg, Va., spent a vacation in August, with his family, at Mountain Lake, Va.

Dr. Loren E. Cockrell

Has returned to his home in Reedville, Va., after a visit to Washington, D. C.

Dr. R. H. Woolling,

Of Pulaski, Va., was a recent visitor in this city, on his way to Virginia Beach.

Married—

Dr. Peyton Moncure Chichester, city medical inspector of Richmond, Va., and Miss Marie Cunningham, Savannah, Ga., August 18.

Lt. James Darden Rives, M. C., U. S. Navy, and Miss Grace Kindred Sebrell, of New York City, at Virginia Beach, August 5. Dr. Rives graduated from the Medical College of Virginia in 1916 and served an internship at the Johnston-Willis Sanatorium, this city.

Helps Reduce High Cost of Municipal Expenses.

Dr. B. Roscoe Gary, coroner for Newport News, Va., who for six months received an average of $93 a month, wrote the city manager and suggested that the Newport News City Council pay him only $75 a month thereafter. The suggestion was accepted with appreciation by the authorities.

Harvard's School of Public Health Receives Gift.

It was recently announced that the School of Public Health of Harvard University has received from the Rockefeller Foundation an initial gift of $1,785,000, with the promise of an additional amount, not to exceed $500,000, should the growth and development of the school require it. This school was organized in 1910, and gives a general course for the training of public health officers and special courses in preventive medicine, tropical medi-

cine and industrial hygiene. This gift will enable the school to extend its work, especially in the line of research work. There are now in this country ten schools for the training of health officers—not only for physicians but for all who may wish to fit themselves for useful careers in up-to-date public health work.

Use Only Regularly Licensed Salvarsan.

The high price of arsphenamine (salvarsan) is a constant incentive to marketing useless fake substitutes. Large quantities of such have recently been detected in New York City and elsewhere. These products should not be bought from unknown persons. The U. S. Public Health Service renews its advice against the use of any arsphenamine not licensed and regularly tested by the Hygienic Laboratory of the Service.

Dr. Clarence Campbell,

Of Sparta, Va., with a party of men from Caroline County, spent a week in August on a fishing trip on York River.

Dr. E. J. Nixon,

Petersburg, Va., suffered two broken ribs as the result of an automobile collision, about the middle of August.

The Cincinnati Health Exposition

Will be held in that city October 15-22, under the auspices of the Public Health Federation. Approximately 30,000 square feet of floor space in the two main exhibit halls will be occupied by non-commercial exhibits, so arranged as to completely encircle the commercial exhibits. The aim of this exposition is to teach the people of Cincinnati the road to health.

Dr. Lynch Heads American Legion in Virginia.

Dr. Junius F. Lynch, of Norfolk, Va., was elected department commander of the American Legion, at the meeting of the Legion in Norfolk early this month. The selection of Dr. Lynch was a very happy one, as he saw a great deal of service during the World War and prior to that time was connected with the Virginia National Guard. Next year's meeting will be in Charlottesville.

Good Health Conditions.

The records of the Lynchburg, Va., Health Department show that no death occurred in that city between August 13 and August 21. This is the best record shown by that city in the past ten years, for which time complete records are available.

While not so good as the above report, Richmond showed the lowest death rate for August, 1921, of any August in the last ten years.

Succeeds Dr. I. S. Stone.

Dr. Robert Y. Sullivan, of Washington, D. C., has been appoined gynecologist to the Columbia Hospital for Women, to succeed Dr. I. S. Stone, resigned, after thirty years of service. Dr. Stone was made emeritus gynecologist by the board of directors.

The National Board of Medical Examiners,

After operating for five years, is now changing its plan of examination. As the work of this Board is so generally recognized, not only in this country, but also in Europe, we are elsewhere in this issue publishing in full an article received from its secretary, Dr. J. S. Rodman. This should be of interest to all prospective applicants for examination to practice medicine in this country.

Drs. Smith and Williams Associated in Practice.

Drs. James H. Smith and Carrington Williams, of this city, have moved their offices to 400 East Franklin Street, where they will be associated in practice.

Dr. Smith will limit his practice to internal medicine and Dr. Williams will confine his to surgery and urology.

First Aid Kits For New Orleans Policemen.

It is announced that all motorcycle and wagon patrolmen in New Orleans have been provided with first-aid kits. Axes and crowbars will be added t othe patrol wagon equipment for service in wrecks and other accidents. New Orleans is said to be the first American city to adopt such a plan.

Span of Life Lengthened.

According to a statement made by the secretary of the American Insurance Union, which is to hold its quadrennial meeting in Columbus, O., September 20-22, the span of man's life has been lengthened fully four years within the last quarter of a century. Improvements brought about by sanitation and other health measures have been contributing factors to produce this state of affairs.

Dr. and Mrs. E. W. Peery

Have returned to their home in Lynchburg, Va., after a visit in the mountains of western North Carolina.

The American Association of Obstetricians, Gynecologists and Abdominal Surgeons

Will hold its annual meeting in St. Louis,

September 20-22, under the presidency of Dr. Henry Schwarz, of that city. Dr. E. Gustav Zinke, of Cincinnati, is secretary.

Dr. R. Bruce James

Has been re-elected vice-chairman of the Danville (Va.), School Board.

The North Carolina Orthopedic Hospital

Has been opened at Gastonia, N. C. Children whose parents are unable to pay will receive treatment free; others will be charged a moderate fee.

Dr. Wade H. Frost,

A member of the '03 class, Medical Department of University of Virginia, and recently surgeon in the U. S. Public Health Service, has been appointed head of the department of epidemiology and public health administration in the School of Hygiene and Public Health, Johns Hopkins University, Baltimore.

The Virginia Tuberculosis Association

Is to have a conference at Jefferson Hotel, this city, October 6. It is expected that more than a hundred health workers will be in attendance. Drs. E. C. Levy, Miss Nannie Minor and Dr. R. K. Flannagan, all of Richmond, compose the committee arranging for this conference.

Status of Pellagra in the South.

According to statement recently issued from Washington, it is estimated that there have been 5,000 deaths in 100,000 cases of pellagra in this country in 1921. A definite increase in pellagra was reported in Alabama, Arkansas, Mississippi, Oklahoma, Texas and probably in North and South Carolina, while some evidence also indicates an increase in Georgia. In Kentucky and Virginia evidence points to a decided decrease in the incidence of this disease.

In this connection, we may state that Surgeon General Cumming has instructed public service officials to attend conventions of agents and demonstrators to be held in the Southern States during the coming year, and deliver lectures on pellagra and preventive methods. The first meeting of this kind scheduled in Virginia is to be at Blacksburg, October 15, 1921.

National Cancer Week.

An educational campaign against cancer will be held throughout the United States and Canada from October 30 to November 5, 1921. This is the first attempt on the part of the American Society for the Control of Cancer to carry out a uniform campaign at one time throughout the country and it seeks the co-operation and assistance of all local and State boards of health, State and county medical societies, nursing and other organizations. Those interested in the success of this campaign should write at once for information to Headquarters Office of the Society, at 25 West Forty-fifth Street, New York, N. Y.

Dr. W. D. Tewksbury

Has resigned as superintendent of the Tuberculosis Hospital of the District of Columbia. Dr. Joseph W. Peabody, resident physician of the hospital, has succeeded him.

Dr. G. A. L. Kolmer

Has been appointed professor of educational hygiene at Roanoke College, Salem, Va., for the coming session.

Personal Responsibility for Transmission of Venereal Disease

Has been upheld by both civil and criminal courts, says the U. S. Public Health Service. In Oklahoma a man has been sentenced to five years in the penitentiary for infecting a girl with syphilis. In Nebraska the court upheld a doctor who warned a hotel keeper that one of his patients, a guest at the hotel, had syphilis and had refused treatment and was consequently a menace to the public health. In North Carolina a woman has been awarded $10,000 damages against her husband for a similar infection, and the Supreme Court upheld the judgment.

Dr. William R. Weisiger,

Who has been visiting his sister in this city, has returned to New York City to resume his duties on the House Staff of the Manhattan Eye, Ear and Throat Hospital. Dr. Weisiger has been in New York since July, 1919, and will complete his service at the above hospital in October, 1922, after which he will return to Richmond to practice his specialty.

Dr. and Mrs. R. L. Raiford,

Of Sedley, Va., are home again after a delightful automobile trip, visiting friends in Pennsylvania and New Jersey.

Dr. S. H. Toy,

Stony Creek, Va., has gone again to Lakeland, Fla.

Vacations of Some Richmond Doctors.

A party, consisting of Drs. A. L. Gray, McGuire Newton, P. V. Anderson, W. T. Graham and P. W. Howle, have returned home after

an automobile trip through the Valley of Virginia and to Northern cities.

Dr. T. F. Gill enjoyed a vacation spent with relatives near his old home in Fauquier County, Va.

Dr. and Mrs. M. W. Peyser are home again after a four weeks' motor trip through the New England States.

Dr. E. T. Gatewood and family spent their vacation on Long Island, N. Y.

Dr. and Mrs. Joseph Bear spent their vacation on a motor trip through the Valley of Virginia.

Drs. B. R. Tucker and Stuart N. Michaux were at Mountain Lake, Va., for sometime in August.

Dr. Robert C. Bryan spent the late summer season with his family at Biddeford Pool, Maine.

Dr. and Mrs. Stuart McGuire, in August, took a motor trip to Canada and on their return stopped to visit friends in Maine.

Dr. and Mrs. J. Morrison Hutcheson have returned home after a motor trip to Staunton and Rockbridge Alum Springs, Va.

Dr. Douglas Vander Hoof spent the month of August at Lake Placid in the Adirondacks.

Dr. J. A. White spent his usual vacation at White Sulphur Springs, W. Va.

Paris Has Large Number of Physicians.

According to the *Journal of the A. M. A.*, of the 22,990 physicians in France and its colonies, 5,415 are located in Paris. This would seem to indicate a greater shortage of physicians in rural sections of France than in our own country.

Dr. H. L. Baptist,

Who has made his home at Ivy Depot, Va., for a number of years, has now moved to University P. O., Charlottesville, Va.

Commander J. B. Mears, U. S. N.,

Of the U. S. S. Arizona, is with the fleet which has been transferred to the Pacific Station, via San Francisco, Cal.

Dr. A. R. Gray,

Who has recently been located at Wilkesboro, N. C., is now at Bentonville, Va.

Dr. W. P. Carr,

Who has made his home in Washington, D. C., for many years, has given up the practice of medicine and moved to Summit Point, W. Va.

Dr. C. M. Byrnes,

Of the Neurological Department of Johns Hopkins Hospital, was a recent visitor in this city on his return to Baltimore from a vacation spent in western North Carolina.

Dr. G. O. Crank,

Of the class of '16, Medical College of Virginia, has recently located in Lynchburg, Va., and has been appointed city physician there, vice Dr. D. P. Scott, resigned.

Dr. R. P. Bell

Has returned to his home in Staunton, Va., after spending his vacation at his camp near Deerfield, Va.

Dr. Kenneth Bradford

Returned to his home in Staunton, Va., about the first of September, after a vacation spent at Warm Springs, Va.

The Southern Medical Association

Is to hold its fifteenth annual meeting November 14-17, 1921, at Hot Springs, Ark.—"the Carlsbad of America." So famed is this place as a health resort, that it is likely to draw a large attendance of the doctors, that they may see for themselves this place of so much interest to which they have been referring patients for many years. Reduced railroad rates may be secured on the identification certificate plan, which may be secured upon application made to the Association office, in Birmingham, Ala.

Dr. Carroll A. Davis,

Of Eagle Rock, Va., left September 1, to take a course in eye, ear, nose and throat work at the Baltimore Eye, Ear, Nose and Throat Hospital. He states that he has left a good opening for some doctor looking for a location.

Dr. B. B. McCluer,

Who has for some time been located at Eckman, W. Va., has returned to Virginia and is now at Bon Air.

Dr. Robert Whitehead,

Of Meherrin, Va., recently visited relatives at Amherst, Va.

Dr. and Mrs. Edward Sandidge

Returned to their home in Amherst, Va., the last of August, after a motor trip to Northumberland County, Va.

Are You a Member?

Entirely aside from its general public health campaign and its work with European children, the American Red Cross spent last year on the disabled soldiers aolne $10,000,000. It

took in an aggregate of $6,000,000 in dollar membership dues.

The work for the soldiers must go on. Their numbers are increasing daily, and a thousand a month are reporting for treatment. Obviously, if the Red Cross is to handle even this one task with any degree of adequacy, the people must support it with more enthusiasm.

The Annual Roll Call this year will be held November 11-24. It is the time set for members to renew their memberships and for new members to join. The dues are one dollar. Everyone who is interested in seeing the disabled soldiers receive continued Red Cross service should join.

Dr. Ralph E. Duncan.

Formerly of this State and who still retains his membership in the Medical Society of Virginia, has notified us of his removal to 1212 Benton Boulevard, Kansas City, Mo.

For Sale.

Nice 10-room dwelling, on 1¼-acre lot, at Chesterfield Courthouse. Improved roads in all directions. Long distance phone. Splendid location for a *Doctor*. Price, $3,000. Write Walter N. Perdue, Chesterfield C. H., Va.—(Adv.)

Obituary Record.

Dr. Russell Stewart Wingfield,

Only child of Mr. and Mrs. J. Tyree Wingfield, of this city, was seriously burned August 14, in a fire which destroyed the American Red Cross children's hospital, at Salonika, Greece, and died August 20, after a week's fight against shock and nephritis. Funeral services were held at the A. R. C. headquarters in Salonika, full military honors being paid by a detachment from the Greek regular army. The body was then shipped home.

Upon completing his academic education at local schools, Dr. Wingfield studied medicine at the Medical College of Virginia, from which he graduated in 1920. During his senior year at college, he served an internship at Sheltering Arms Hospital, this city. Later he was appointed an interne at Stetson Hospital, Philadelphia, from which place he entered the Red Cross service and went abroad last February. He was immediately put in charge of the children's hospital at the Kalamaria Refugee Camp. When the fire broke out in the dispensary, Dr. Wingfield succeeded in saving all the patients and personnel, with the exception of one Greek interpreter. Dr. Wingfield, however, suffered severe burns about his face and arms, which resulted in his death. By his enthusiasm and interest in his work, Dr. Wingfield had won the affection and esteem of those associated with him at the hospital. He was a young man of high moral integrity.

Dr. Herman Lee Poff,

Of Ferrum, Va., died at a hospital in Roanoke, August 9, as a result of gun shot wounds received several days prior to that time. Dr. Poff was 34 years of age and prominent in his section. He was a graduate from the Medical College of Virginia in 1912. Shortly before his death, he had presented his application for membership in the Medical Society of Virginia to come before the membership committee at this year's meeting.

Dr. Howard Wheelwright Kline,

Of Vaucluse, Va., died at a Richmond hospital August 15, after a short illness. While on a vacation in West Virginia, he was taken with acute appendicitis and was brought to this city. Complications developed several days after the operation, which resulted in his death. He was a graduate of the Medical College of Virginia in 1920, after which he served an internship at Johnston-Willis Sanatorium, Richmond. He was 43 years of age.

Dr. Archibald McDowell Bynum,

Of Valentines, Va., a member of the Medical Society of Virginia, died July 18, at the age of 32 years. He received his medical diploma from the former University College of Medicine, Richmond, in 1913.

Dr. Floyd W. McRae,

A prominent surgeon of Atlanta, Ga., was found dead in his room, August 13, as the result of a revolver wound. He was 59 years of age and is survived by his wife and two sons. Dr. McRae graduated from the Atlanta Medical College in 1885, and later took post-graduate courses in New York. He held membership in a number of the surgical associations of this country.

Dr. Hansell Crenshaw,

A well known neurologist of Atlanta, Ga., died in that city August 20, after a short illness. He was 43 years of age and a graduate from the Atlanta College of Physicians and Surgeons in 1900. During the war, he served in France with the Emory unit.